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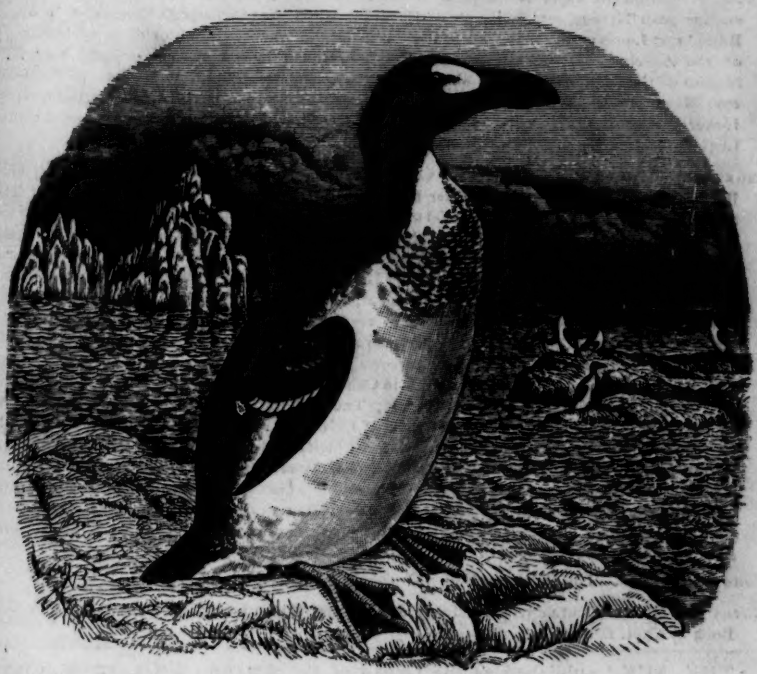

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'THE AUK,' published as the Organ of the AMERICAN ORNITHOLOGISTS' UNION, is conducted as a **Magazine of General Ornithology.** In general character it differs little from the late 'BULLETIN OF THE NUTTALL ORNITHOLOGICAL CLUB,' of which it forms virtually a Second Series.

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AN ACCOUNT OF FLAMINGOES (*PHŒNICOPTERUS RUBER*) OBSERVED IN THE VICINITY OF CAPE SABLE, FLORIDA.

BY W. E. D. SCOTT.

IT WAS my good fortune, during February of the present year, to have an opportunity of observing for several days the only large flock of Flamingoes that still frequents the shores of the extreme southern portion of Florida. Here, owing to the environment, these birds have remained comparatively undisturbed, the region being very inaccessible, because of the absence of fresh water and the great expanses of very shoal salt water, that can only be navigated by the lightest draught skiffs on favorable tides; hence very few hunters, and only those who have declared the war of extermination on the Snowy Heron (*Ardea candidissima*) and the White Egret (*A. egretta*), ever visit the locality in question. The 'plume hunter' is in greater numbers and more active than ever in South Florida, and there are absolutely *no Heron rookeries* on the salt water bayous or on the outlying keys of the Gulf coast of Florida, from Anclote Keys to Cape Sable. I have recently spent some three weeks in carefully examining this coast, making in my small schooner from twenty-five to sixty miles a day, and the only rookeries that I saw were two on keys in Charlotte Harbor and three to the south of that

point, five in all. These rookeries were inhabited by comparatively small numbers of Brown Pelicans, Florida Cormorants, and White Ibises,--nothing else.

Eighteen miles east of Cape Sable are three bays making into the mainland. The water in these bays and for miles outside of them is extremely shallow, being rarely more than eighteen inches in depth, while the average depth on ordinary tides probably does not exceed six inches. The bottom is soft and muddy, and the mud is very deep, making wading, for a man, impossible. The shores are wooded with black mangrove, 'button wood,' and some cabbage palmettoes, and there is much undergrowth of smaller shrubs. The land is so low as to be flooded at any extra high tide. The country is necessarily very damp, and is the home of the mosquito in all its varieties. Even in February, when I visited the region, though a stiff easterly breeze was blowing all the time, going ashore was something to be dreaded, and once on the land the conditions were wellnigh unbearable. It was a most desolate and forbidding region either on sea, if sea it may be called, or on the land.

I had heard much of this flock of Flamingoes, and taking a supply of fresh water, enough to last for a week, the schooner, or more properly 'sharpie,' was turned in the direction of the locality I had been led to believe the birds frequented. After rounding Cape Sable we were able to cruise in the sharpie, which only draws about eighteen inches of water, to a point some seven or eight miles east of the Cape and about two miles from the mainland. Here all semblance of a navigable channel ceased, and here I was obliged to make my headquarters. In the vicinity were a few scattered keys wooded with mangrove, all of them affording breeding places and homes for *Ardea occidentalis*. This beautiful and conspicuous species was not at all uncommon, but seemed there to be of a solitary disposition, in no way resembling its allies, all of which seem more or less gregarious, especially in the breeding season. An examination of the keys rarely showed the existence of more than two nests on an island, and the birds were so wary as to be almost impossible to approach, even when nesting. The breeding season, I should say, was fairly begun, if not at its height, and in one nest I found two downy young, one of which was apparently a day or two old, and the other just hatched from the egg and not yet dry. There

were also in this nest two unhatched eggs that contained large embryos. So it seems probable that incubation begins with the laying of the first egg, and is continuous till all are hatched. Of other birds there were few on these keys; but Brown Pelicans and Cormorants were frequent, and among the smaller land birds *Thryothorus ludovicianus miamensis* and *Geothlypis trichas ignota* were quite common, and a few representatives of each of the following species were observed at different times during my stay here: *Dendroica blackburniæ*, *Dendroica virens*, *Dendroica palmarum*, *Dendroica palmarum hypochrysea*, *Dendroica coronata*, *Galeoscoptes carolinensis*, *Seiurus aurocapillus*, *Seiurus noveboracensis*, *Melanerpes carolinus*, *Colaptes auratus*, *Falco sparverius*, *Ceryle alcyon*, *Cathartes aura*, *Haliæëtus leucocephalus*, *Corvus ossifragus*.

To return to the Flamingoes. It was some nine or ten miles from our anchorage to the mouth of the first of the three bays I have mentioned,—a long way to go in a skiff. But both of our boats were soon manned and we began the details of the exploration. Rounding the point opening the first or more westerly of the bays, we found that it was about a mile and a half in width and some three miles deep into the land, with a decided bend to the west. No birds were to be seen till this bend was in turn opened, and there, still a mile or more away, was presented a truly wonderful sight. Stretched out for fully three quarters of a mile, and about three hundred yards from the mainland shore, was a band of rosy, fire-like color. This band was unbroken, and seemed to be very even, though curving with the contour of the shore. Now and again a flame or series of flames seemed to shoot up above the level of the line. This proved when examined through the glass to be caused by one or more birds raising their heads to look about or to rest themselves, for when first noticed all were feeding, with their heads most of the time buried in the shallow water, searching the mud for the small shell fish which appear to be the favorite food at this point.

Presently some of the birds saw the boats, and the alarm was given. Slowly the line began to contract toward the centre, and the birds were soon in a compact body, appearing now like a large field of red upon the water, and the resemblance to flames was much increased by the constant movements of the heads and necks of the different individuals. In a few moments they began

to rise and soon they were all in full flight, passing out of the bay and over the point of land to the east in long lines and in V-shaped parties, recalling to mind the flight of Wild Geese. If the color on the water was novel, that of the flock while in the air was truly surprising, a cloud of flame-colored pink, like the hues of a brilliant sunset. As far as we could descry the birds, the color was the great conspicuous feature. Looked at through the glass, while in flight, the individuals composing the flock were seen to be mostly adults. I saw only a small division of the lighter colored immature birds. These seemed to have their own particular position in the flock, and on this and subsequent occasions, when seen, these younger individuals were always alone. As nearly as could be estimated there were at least one thousand birds in this flock, and of these all but about fifty appeared to be adults.

After the flock had disappeared and had seemingly settled in the second of the bays, we allowed an hour or more to elapse before trying to approach them again. Then I took a stand on the end of the point that separated the first two bays, hoping to get a nearer look at the flock, should they return, when disturbed, to their first feeding place. One of my aids was also posted at what appeared to be another point of crossing for the birds, and the boat started toward the point where we believed the flock to have alighted. This time it was getting late in the afternoon, the birds were much tamer, and Mr. Henry W. Cook, who went after them in the boat, said that they were very loth to leave, and that the flock alighted twice after taking wing, before they finally flew, and this time again to the eastward and presumably into the third of the bays alluded to. Even then a considerable contingent, a hundred or more, did not forsake the second bay, but alighted in very shoal water where it was not possible to approach in the boat. So we left them after the first day, not having fired a shot, but having had a very good look at them, and having gained some idea of their habits when feeding and when alarmed.

The next morning on reaching the first bay, as soon as I was sure that the large flock was again feeding, the boats were concealed in the bushes, and for three hours I watched the flock with the glass, first having crawled along the shore as near as I could without creating alarm, so that I had a very good opportunity of watching them.

While feeding they were stretched out in the long line already described, sometimes in a single, but quite as often in a double rank. This line varied in length at different times, sometimes being fully a mile long and again contracting to some six hundred feet. When most stretched out it was broken in places, an interval of a hundred feet being the largest open space observed.

All the time the birds were feeding there were three small parties, varying from two to five individuals, that were apparently doing a sort of picket duty. At each end of the line and about one hundred yards from it was posted one of these parties, and off shore and at the centre of the line and some hundred yards away the third party was stationed. About every half hour the individuals composing these picket squads would take wing, fly to the flock in line and alight, and presently, that is in less than a minute, another or part of the same picket squad would leave the flock and fly to the point left but a few minutes before. I am not sure that the entire squad was changed at such times, but the pickets taking the place that had been left only a few minutes before were generally one or two more or less in number than the party they apparently relieved. I never saw more than five individuals in a party, and now and then there was only a single sentinel, but generally from three to five. The birds at these outposts did not appear to be feeding, but were apparently guarding against any attempt to surprise the main body.

After watching them for rather more than three hours, I again posted two men at points which I thought would give them opportunities to secure some of the birds, and taking one of the boats to windward with Capt. Cook to paddle, I attempted to drift down on to the flock. As we approached, the pickets flew and joined the line which gradually contracted into a solid body. Looking through the glass I saw they were all facing us Presently they flew as we came within five hundred feet of them. But they seemed very loth to leave their feeding ground, and soon all of them alighted again. This was repeated three times, when the flock seemed to loose its organization somewhat and became broken into smaller parties. One of these parties, composed of five adult birds, came within very long buckshot range, and I was so fortunate as to wound and finally secure a single one. The whole flock left as soon as I fired, and we did not find it again that day. The bird secured was in full, unworn,

adult plumage, and proved on dissection to be a female, and from the condition of the ovaries laying would have begun, I think, in from four to five weeks.

The next day two more adult female birds were secured by members of the party, but though we tried afterward, and always saw the birds, they had become so wary that our efforts were futile. The ovaries of these two females were in about the same condition as in the one already described.

From information gathered from a man who has known of this flock of birds for several years, I am led to believe that they breed somewhere in this vicinity. He tells me that from July to January Flamingoes are to be found on the outlying islands and reefs of Barnes Sound and Biscayne Bay, but that in January they begin to congregate at the point I have indicated, where there are always at least a hundred of the birds the year round. From these facts and the approach to the breeding season indicated by the females we obtained, it seems altogether probable that this large flock of Flamingoes breeds at some point not far from where I found it.

My thanks are due to Capt. Cook and to Mr. W. E. Treat of my party for aid in securing and observing these remarkable birds.

CAPE COD BIRD NOTES.

BY G. S. MILLER, JR.

THE FOLLOWING notes were made during the years 1888 and 1889 in the vicinity of Highland Light, North Truro, Mass.

At this point Cape Cod is but little more than two miles wide. On the ocean side banks of clay and sand rise to a height of about one hundred and fifty feet above the water. From here the land slopes gradually westward, the general level broken only by an occasional valley or 'sink hole,' to the Bay where the sand 'cliffs,' as the natives call them, although much less high and commanding than those on the ocean side, are nevertheless quite

abrupt. The soil is almost entirely sandy, supporting a scant vegetation among which such species as *Ammophila arundinacea*, *Andropogon virginicus*, *Arctostephalos uva-ursi*, *Corema conradii* and *Hudsonia erecoides* are noticeable. The only abundant trees are the scrub oaks and pines. The former seldom attain a greater height than ten feet; while the pines are but little taller, excepting where, as in some deep 'sink hole' or valley, they are sheltered from the force of the wind. Here they sometimes grow to a height of nearly thirty feet. These pines for the most part have been planted within the past twenty years, and seem to have about completed their growth, as most of the larger ones already show signs of decay. The 'sink holes' form a characteristic feature of the place. They occur in great abundance, varying from slight depressions in the ground to deep, irregularly circular basins several acres in extent and probably seventy-five to one hundred feet deep. At the bottom of them there is apt to be a richer soil than that of the surrounding country, and it is also very common to find a pool of water.

Most of the captures here recorded were made near the little group of farmhouses known as the 'High Land' settlement, which stands about half a mile back from the ocean, and almost due west of Highland Light.

Xema sabinii.—I secured a fine adult female of this species in fresh autumnal plumage on August 21, 1889. The bird was shot from a fishing boat about three miles west of North Truro, in Cape Cod Bay. When first seen it was feeding among a flock of *Larus* and *Stercorarius* upon the dog-fish livers which had been thrown overboard to attract the sea-birds.

The only other Massachusetts records of this species are, so far as I am aware, a young bird taken in Boston Harbor on September 27, 1874 (see "Brewster, Am. Sportsman, V, 1875, 370," Allen, Bull. N. O. C., III, 1878, 195, which see also for other New England records) and another specimen killed on "Cape Cod" during 1888 (Ornithologist and Oölogist, XIV, June, 1889, p. 95).

Ereunetes occidentalis.—Although I searched carefully for this species during the autumn of 1888 and summer of 1889, I failed to detect it until September 2, 1889, when I obtained a fine adult male from a gunner who had killed the bird on the beach, about two miles north of Highland Light, on the ocean side of the Cape. This is the only specimen that I have met with on Cape Cod, and the species must be rare, or at least irregular, at North Truro, as I have examined large numbers of *Ereunetes* in search of the western bird.

Sayornis saya.—On September 30, 1889, I killed an adult male of this western species, near one of the High Land farmhouses. It was after sunset when the bird was first seen, and several times during the rather long chase that he gave me I nearly lost him in the darkness. Late though it was, he was busily engaged in catching insects, which he invariably did by flying directly upward. The only way in which I can explain this peculiar action is by supposing that in the fast failing light, insects were most easily seen when outlined against the sky. His flight, and in fact all of his motions, seemed strong and active, and did not in the least suggest fatigue. So far as I could tell he was perfectly silent; but as there was a high south wind blowing at the time, some slight note might easily have passed unnoticed. Upon dissection the bird proved to be in good condition, fat, and apparently uninjured in any way, excepting that the right scapula had, at some previous time, been fractured near its distal end. This injury was, however, so perfectly recovered from, that it could have caused the bird no inconvenience whatever. The testes were as well, if not better, developed than is usual in autumnal birds. The stomach was well filled, chiefly with *Diptera*, but the heads of a few ants were noticed among the other contents.

It is unnecessary to say that this is the first record of the capture of this species in New England.

Loxia curvirostra minor.—On April 24, 1889, while hunting in a deep sink hole known locally as Hell's Bottom, about a mile and a half north of Highland Light, in the midst of a tract of pines covering about one hundred acres, I secured four specimens of this species. Two days later another was taken at the same place. Besides the specimens taken, perhaps half a dozen others were seen. The birds were all found among the pines which in this sheltering 'sink hole' had attained a height of from twenty to thirty feet. For Crossbills they seemed remarkably quiet, and showed none of that restlessness which generally seems so characteristic of these birds. They were quietly flying about among the pines and now and then alighting by the pool at the bottom of the sink hole to drink and bathe. They all seemed to be perfectly silent.

Of the five taken three were females, and upon dissection all showed unmistakable evidence that they were breeding. The testes of the two males were much enlarged. Of the females, the one taken on April 26 had just depostited her set of eggs. The oviduct of this specimen showed that it had very recently been active; while in the ovary were three ruptured capsules. Of the two females taken on April 24, one had several much enlarged ova in the ovary, and in the oviduct an egg upon which the shell had not yet begun to form; while the ovary of the other contained several much enlarged ova.

Unfortunately, after skinning the birds, I was unable to visit Hell's Bottom again in search of nests; but there is little room for doubt that the birds were breeding very near to the place where they were found.

Spiza americana.—A single immature male shot from a mixed flock of small Sparrows feeding in an asparagus bed, on September 30, 1889, is my only Cape Cod record of this species.

Thoreau in speaking of this part of the Cape ('Cape Cod,' p. 120) says: "Of birds not found in the interior of the State—at least in my neighborhood—I heard, in Summer, the Black-throated Bunting (*Fringilla Americana*) amid the shrubbery." This was in 1855 (l. c., p. 1) and it is very possible that the bird was more common there then than now. If the species breeds at all near Highland Light at present, it must be a very rare occurrence, as I utterly failed to detect it during the breeding season, although, having read Thoreau's note, I was constantly on the lookout for it.

Dendroica palmarum.—Two specimens taken on September 23, 1889, and another on the 24th of the same month, are the only specimens of the Western form of the Palm Warbler that I have met with at Highland Light. *Dendroica palmarum hypochrysea* was quite common from October 2 to 12 in 1888, and in 1889 arrived on October 6 and remained fairly common until the time of my departure from High Land on October 15. These individuals of *palmarum* were much less shy than the average *hypochrysea*, but otherwise I noticed nothing peculiar in their habits.

Polioptila cærulea.—An adult female was secured on October 9, 1889. The bird was feeding among some small pines not over four feet high, in company with a small flock of *Dendroica coronata*, *Sitta canadensis* and *Spinus tristis*, and is the only one that I have met with on Cape Cod.

ADDITIONAL NOTES ON THE BIRDS OF ONEIDA COUNTY, NEW YORK.

BY WILLIAM L. RALPH AND EGBERT BAGG.

SINCE the publication of our local list* in 1886, we have devoted a much larger portion of our attention to the western part of the County, the eastern end of Oneida Lake. We have also had during the past four years the benefit of the observations of Mr. W. P. Shepard of Utica and Mr. R. J. Hughes of Remsen, both students at Hamilton College at Clinton. The results of the time since 1886 will be found in the following notes.

*Transactions of the Oneida Historical Society, Vol. III, 1886, pp. 101-147.

Of new records we have the following:

Urinator lumme.—A young bird of this species was killed at Clinton, in October, 1889, by a young man of that place, who has had it mounted and preserved.

Crymophilus fulicarius.—A young bird, probably a female, was killed at Sylvan Beach on the east end of Oneida Lake, Oct. 4, 1889, by Messrs. Shepard and Hughes.

Icterus spurius.—A male of the third year was seen near Bear Pond, Herkimer Co., May 15, 1887. Unfortunately, as it was on Sunday and no gun was at hand, the bird was not secured, but there is no doubt of the identification, as he was watched for some time, both with a field glass and with the naked eye, and every mark was plainly seen.

Coccothraustes vespertina.—The unusual migration of this species during the past winter, brought a record to us as it did to many other localities in the State. On Feb. 9, 1890, Mr. James R. Benton of Clinton, N. Y., saw a flock of four singing on a tree before his house, and had the good fortune to secure three of them, a male and two females, all of which have been preserved.

Seiurus motacilla.—In a little ravine in the town of Kirkland we secured our first specimen May 9, 1887, and in the same ravine it has been found by Mr. Shepard in May, 1888, and 1889, and it undoubtedly breeds there, though no nest has been found.

These five additions, together with *Tringa bairdii*, recorded by Mr. Henshaw in 'The Auk,' Vol. II, p. 384, from Locust Grove, N. Y., but overlooked in making the List, raise the total number of recorded species for Oneida Co., and its immediate vicinity to 230.

The following are some observations upon species given in the List, which seem to us worth a record.

Olor columbianus.—A fine specimen of this bird was killed on the river flats in the town of Deerfield, March 13, 1890, and is now in the collection of W. L. Ralph. This bird was given in the List on the authority of De Kay, with the further statement that several Swans, undoubtedly of this species, had been killed on Oneida Lake. This is, therefore, the first positive record for the County.

Ardea egretta.—A specimen killed in Marcy, about Nov. 10, 1889, was mounted by Messrs. J. P. and F. J. Davis, taxidermists, of this city. This is our third record.

Phalaropus lobatus.—A specimen killed at Sylvan Beach, east end of Oneida Lake, Sept. 21, 1889, is our second record.

Tringa minutilla.—One taken at Sylvan Beach, Oneida Lake, Sept. 18, 1888.

Charadrius squatarola.—A specimen was taken at Sylvan Beach, Oct. 8, 1888. Another was taken at the same place Sept. 24, 1889. These are the first records for the County, though the species was given in the List as taken on the Lake by Mr. A. A. Howlett of Syracuse.

Zenaidura macroura.—We find the species rather common on the pine barrens at the east end of Oneida Lake, undoubtedly breeding, though we

have failed to find a nest. A female killed April 13, 1889, contained a fully formed egg. A single bird was also observed at Utica, May 7, 1889. This species was given in the List on the strength of a single specimen taken in Herkimer Co., and its occurrence in such numbers as we have found it, was a great surprise.

Accipiter velox.—Two nests were taken near Holland Patent, May 18, 1887, and June 7, 1887.

Accipiter atricapillus.—A specimen was taken at Remsen in January, 1888, a second somewhat later in the same winter, a third at Trenton Falls during the next summer, and a fourth at Remsen in October of the same year. The first and last are in the collection of Mr. Hughes. We had but one previous record.

Falco columbarius.—A specimen was taken at Sylvan Beach, Sept. 12, 1889, by Messrs. Shepard and James R. Benton.

Syrnium nebulosum.—Breeds. A nest containing two eggs was taken at Holland Patent April 18, 1889.

Nyctala acadica.— Our fifth nest of this species was taken near Holland Patent April 30, 1889, from a hollow 65 feet from the ground in the dead limb of a living tree. The clutch (which was probably not completed) consisted of four fresh eggs.

Melanerpes erythrocephalus.—Messrs. Shepard and Hughes found these birds at Remsen, Dec. 20 to 22, 1888.

Antrostomus vociferus.—This species is common along the shore of Oneida Lake in June. Undoubtedly breeding, though we have not found it. It was given in the List on the strength of a single specimen taken in Herkimer Co.

Spinus tristis.— Messrs. Shepard and Hughes found these birds at Remsen, Dec. 20 to 22, 1888.

Spinus pinus.—Messrs. Shepard and Hughes found these birds in large numbers near Remsen April 4 to 9, 1889, apparently mated and preparing to nest, but a careful search a week or two later failed to find them.

Pipilo erythrophthalmus.—A fine male killed in New Hartford, May 12, 1889, is our second record.

Vireo solitarius.—Mr. Shepard states that this bird is a summer resident about Joe's Lake, in Herkimer Co., where he found a nest containing young July 25, 1888.

Dendroica cærulescens.—Our fifth nest of this species was found June 22, 1888. It contained two addled eggs, one young Warbler, and two young Cow Birds able to fly.

Dendroica blackburniæ.—Breeds. Mr. Hughes found a nest containing young in July, 1887, near Remsen. July 16, 1888, we took a nest about four miles north of Holland Patent, which contained four eggs on the point of hatching. The nest was well concealed in a bunch of small branches, about fifteen feet above the ground, in a spruce tree. It was composed of hemlock and spruce twigs outside, then pine needles and dry grass, and lined with horsehair. The eggs (which we were unable to save, they were so near hatching), were large for the size of the bird, and darker colored than is usual with Warblers' eggs.

Dendroica vigorsii.—June 11, 1889, at Sylvan Beach, we saw at least two pairs building in high pines. We watched them, with a glass and the naked eye, collecting spiders' nests from under the veranda of a cottage and carrying these and other materials into two places in the pines. A day or so afterwards a gang of men moved a neighboring cottage a few feet, cutting two trees near those in which the birds were building, and the birds disappeared. About two weeks later a single bird was seen at the same place. This species was given in the List on the strength of the single specimen given by Dr. Merriam, in his 'Preliminary List of the Birds of the Adirondack Region,' as taken at Lyon's Falls. It must now be given as a rare summer resident, breeding.

Dendroica palmarum.—Given in the List on the authority of Dr. Merriam. Mr. Shepard has taken three specimens, two near Clinton, May 3 and 9, 1888, and one at Sylvan Beach, Oct. 5, 1889.

Troglodytes aëdon.—Perhaps the strangest observation we have to record is the entire disappearance of this species which was ten or fifteen years ago one of our most abundant species, nesting in dozens of bird houses in the city and in every empty shed and wooden bridge in the country. In the List it is given as "a summer resident, not nearly so common as formerly, breeds." Since that was written four years have passed during which, of the four workers whose observations are here recorded, only one has seen a single specimen of this bird. Since 1887 not a single one has been observed. We are unable even to suggest an explanation of this mystery.

Troglodytes hiemalis.—We have taken two more nests of this species, June 28 and 29, 1887, at Holland Patent and Trenton Falls. They were placed and constructed almost exactly as the one described in the List, and contained four and six fresh eggs respectively.

Certhia familiaris americana.—Since the nest described in the List, we have taken three more, all near Holland Patent, and each placed under a loose piece of bark beside the trunk of a dead tree. The first was taken June 15, 1888, and contained four young birds ready to fly and two addled eggs. The second was taken June 21, 1888, and contained five nearly fresh eggs. The third, taken June 30, 1888, contained six fresh eggs.

Sitta canadensis.—A common migrant; summer resident in the northern part of the County. Breeds. A second nest, taken May 30, 1887, in Wilmurt, Herkimer Co., contained six fresh eggs.

Parus hudsonicus.—A specimen was killed by Mr. Hughes at Remsen, Dec. 25, 1886. This species was given in the List on the authority of Dr. Merriam.

Regulus satrapa.—Given in the List as "a common migrant." To this must be added:—An occasional resident, both winter and summer; breeds.—A specimen was taken by Messrs. Hughes and Shepard at the same time and place as the preceding, and they also report that they have found them other winters. During the latter part of June, 1888, near Holland Patent we observed a pair of these birds followed by seven or eight young which they were feeding.

NOTES ON THE NESTING HABITS OF SEVERAL BIRDS AT SAN JOSÉ, COSTA RICA.

BY GEORGE K. CHERIE.

Todirostrum cinereum (LINN.).

AT SAN JOSÉ I first met with this active and curious little Flycatcher early in April, 1889, when I secured two fine specimens, after having watched them as they searched diligently among the leaves and smaller branches for their insect food, all the time uttering a sharp, jerky, and to me unmusical, note. Arriving at the end of the branch they would pause for a moment, and then perhaps dart off, taking their prey on the wing. Flying from tree to tree, they kept close by the river, and indeed thus far in my observations I have not seen one go twenty feet from its bank.

On April 26 I found the first nest, evidently just completed. But, unfortunately, before I could prevent it, the boy who was with me had torn it down. At that time I was ignorant who the owner might be, and not a little vexed at the proprietors for not claiming their property. The peculiar construction and location interested me—hanging at the extreme end of a long, delicate, leafless branch that swung out over the river about five feet above the water, apparently a handful of dried grass that had been entangled there during high water. On closer examination it is seen to be constructed of very fine plant fibers and dried grass, the whole neatly covered with the downy plumed seeds of some plant. In shape it can best be described by supposing the two poles of a hollow sphere to be drawn in opposite directions until we have a figure something like two cones base to base. The hollow of the nest is exactly in the centre. The entrance is on one side and from below, formed by a covered passage, so that looking from above or at the sides no means of entrance can be seen.

From April 26 until May 12 I occasionally saw one or two birds busily hunting after insects in the low trees along the river bank. On the latter date I found a second nest, apparently completed on the outside. I saw the bird with a mouthful of soft material fly to the shrub in which the nest was situated; but, see-

ing me, the material was immediately dropped and a vigilant search for insects commenced. Not wishing to intrude any farther at that time, I took my departure, and returned on the 17th for the nest. I found it completed and containing one egg. Unfortunately, after cutting the branch which held the nest, my footing slipped, and in the endeavor to avoid falling the egg was thrown out and broken. The half shell that I brought away is pure white. The nest was situated about eight feet above the water at the extreme end of the long, overhanging branch of a rose bush, with no green leaves within three feet of it, and not concealed in any way save by its resemblance to a bit of drift grass. From the point on the branch at the apex of the upper cone to the extreme lowest point is fifteen inches. The diameter at the centre is two and a half by three and a half inches, the greater diameter being caused by the entrance passage which is round and one inch in diameter. In taking this nest I was severely bitten and stung by the vicious little black ants that had the hollow stem of the rose for a nest. Mr. Anastasio Alfaro informs me that he has noted nests in the vicinity of Alajvela protected in the same manner. During the time I was taking the nest I did not see or hear anything of the owners. On going away I saw the female quietly hopping about in search of insects in a tree near by, seemingly taking no concern in what I was doing. A short distance down the river the male was to be seen darting here and there, a noisy and most pugnacious little fellow.

I saw no more of the birds until May 26, when I found a nest just completed, but not containing eggs. I visited the spot again on the 30th of the month and secured the nest and two fresh eggs. As with the others the nest hung at the extreme end of a small, delicate branch about four feet above the water and was not concealed in any way by leaves or by surrounding branches. It measures as follows: extreme length, fourteen inches; diameter at centre, three and a half by two and a half inches; entrance, one inch. The two eggs measure each .62 × .45 inch. One is a pure, delicate white; the other has a few very pale, scarcely visible ochrous buff spots about the larger end. While I was taking the nest the bird was nowhere to be seen, and not a sound came from her. But on going away I noticed her acting precisely as in the case before described. It seems to me probable that the three nests were built by the same birds. After my taking this last nest

the birds seem to have deserted the locality. I saw no more of the species until July 12, when I took a fine male, but a very quiet, different bird from the pugnacious, restless, noisy fellow of six weeks before.

Myiozetetes texensis (GIRAUD).

I have been able to make but very few notes on the habits of Giraud's Flycatcher, as the bird cannot be said to be common in the vicinity of San José, yet, as I believe the eggs are unknown, I will give a description of a nest and three eggs which I took on May 1, 1889. The nest was found on April 26. It would never have been observed had not the bird manifested great concern, flying repeatedly back and forth to the nest while I remained watching. As at that time it did not appear completed, I did not tarry long, but returned on May 1 for the prize.

The nest was situated near the end of a slender branch growing out over the water from a small shrub on the river bank. As there were no leaves, it was in plain view from any quarter, yet from its bulky, ragged appearance it would hardly have drawn attention as being more than a handful of dry grass and weed stems. It was about six feet above the water. Placed at the fork of the branch, it neither rests on the forks nor can it properly be said to hang between them. It is a hollow sphere, divided and supported at the middle by the horizontal branches of the fork. The entrance, in the upper half, is arched over forming a dormer-window-like doorway; it measures two and three quarters inches wide by two deep. The nest proper measures seven inches vertically by six horizontally.

The eggs, three in number, perfectly fresh, are white speckled with walnut and seal brown, very thickly at the larger end. They measure .86 × .65, .90 × .67 and .90 × .68 inch.

Elænea pagana SCL.

Within six feet of the nest of *Myiozetetes texensis*, just described, was a nest of *Elænea pagana*. The two birds were evidently living on the best of terms. The nest, a beautifully delicate, lichen-covered affair very closely resembling the nest of *Contopus*

virens, was about four feet above the water in the thick bushes on the river bank, and was completely concealed by leaves. It rested on a small horizontal branch, and was held in place by three ascending twigs. It is rather small and compact, covered on the outside with gray lichens and some few spider-webs, the latter binding the lichens. A green leaf is bound to the upper edge on one side. The inside is carefully lined with soft feathers. Inside its diameter is two inches (in the direction of the branch) by one and three quarters, by one inch deep. Outside it is three and three eighths by three and one eighth, by two inches deep. The eggs, two in number, were slightly incubated. They are cream white, speckled, chiefly about the larger end, with spots varying in color from a dark chestnut or livid brown to orange rufous. The eggs measure .82 × .64 and .82 × .62 inch. While I was engaged in taking the nest the parent bird flew restlessly from branch to branch of the trees near by. When resting she sat bolt upright with crest erected, calling out her discontent in short, sharp, quickly repeated chirps. She seemed much more annoyed than the *M. texensis*. I did not see the male at all. This was the first nest I found.

On the 5th of the month I found another nest about two thirds completed. Almost all the outside was covered with lichen, but it had not yet any lining. The birds were quite solicitous while I was there. It was but nine feet from the ground, situated at the horizontal forks of a very small limb and not in any way concealed, save by its lichen-covered sides resembling a part of the limb. On May 12 I found the nest completed and containing two young birds at least a day and a half old.

On June 2 I found a third nest, containing two fresh eggs, in a small tree close by the river bank. It was situated about ten feet from the ground, far out on a limb at a point where it divided into four ascending shoots which gave excellent support. It was well shaded by leaves from above, and owing to its covering of lichens was not conspicuous from below. The nest is compact and well built, and is almost round. It is lined with half a dozen feathers, a few long horse-hairs, and several pieces of lichen. The rim is slightly contracted. Outside it measures three and a quarter inches in diameter by one and a half in depth. Inside its diameter is two and a quarter inches, its depth one inch. The two

eggs measure respectively .87 × .62, and .90 × .63 inch. They are creamy-white, thickly speckled, chiefly about the larger end, with irregular spots varying in color from liver brown to orange rufous. On finding the nest I waited a few minutes. The female flew quickly to a tree near by, but gave no note to indicate her presence.

On this same date I took the first fully fledged young. It differed from the adult only in the absence of the concealed crown patch and in much softer plumage.

I took a fourth nest June 11. It was placed about twelve feet from the ground in the upright forks of a small tree that stood alone in a large field. It is a little unusual in shape, being oval in form, while ordinarily they are almost round. The measurements inside are 2.38 by 1.38, by 1.12 inches deep; outside 3.50 by 3.00, by 1.75 inches deep. It is beautifully covered with lichens, and is lined first with a few horse-hairs, and then completely with white chicken feathers. The eggs measure .87 × .65 and .88 × .66 inch, and in color are like those already described.

The last nest I took was on June 14. With this the birds were as unexpectedly slow in the use of their nest as the owners of the nest of May 5 were quick. I found it just completed, but without eggs, on June 7. On June 9 it was still empty. On June 14 it contained two fresh eggs. The nest was about seven feet from the ground in a tree that grew at an angle of about 45° with the ground; at the first branches there was formed a broad, flat space, and there the nest was placed. None of the materials of construction went around the branch to bind it there, but it was attached quite firmly with lichens and spider webs. It measures inside 2.25 inches in diameter by 1.38 inches deep; outside 3.50 × 3.00 inches by 1.50 deep. It is lined first with horse-hairs and then with soft light-colored feathers. The eggs measure .84 × .65 and .85 × .66 inch, and are marked like the preceding. While I was at the nest both birds remained close at hand, flying restlessly back and forth. Whenever they alighted they stood very erect with the crest fully expanded. They seldom uttered a note.

NOTES ON THE FRINGILLIDÆ OF WESTERN ILLINOIS.

BY OTHO C. POLING.

IN PRESENTING a paper on the family Fringillidæ it had been my intention to include only those species of rare occurrence which had come under my observation, but as my notes have increased considerably within the past three seasons I shall, for the sake of completeness, cover the entire family, and consider in particular the rarer Sparrows and Finches. Adams County, where the material for these notes was gathered almost entirely, is situated on the the Mississippi River, west of the centre of the State, the 40th parallel running through its centre. The bottom lands extending north and south through its western portion vary in width from two to six miles, except in the immediate vicinity of Quincy where the bluffs closely approach the river. A large part of these lowlands are free from cultivation, being frequently overflowed. Numerous lakes and sloughs and large tracts of swamp land are interspersed through this territory, and while there are vast tracts of heavy timber, much of it is grown up with reeds and rushes or covered with rank grass and weeds. Willows are everywhere found in abundance, often tracts of many miles being covered by them. Among the bluffs, and to the east, the country is somewhat hilly or undulating, and is drained by numerous large and rapid creeks. Here also is found a great variety of timber. Lima Lake, which will be referred to occasionally, is in the northwest part of the County. It covers a dozen or fifteen square miles, and is usually very shallow.

1. **Coccothraustes vespertina.** EVENING GROSBEAK.—Irregular in its appearance but frequently seen in Illinois. Specimens were observed in the winter of 1887. (See 'Ornithologist and Oölogist', March, 1889.) A small flock of six or seven individuals were seen on April 1, 1889. They were at rest in the top of a soft maple, and had evidently been feeding on the buds during the morning as numbers of them were scattered upon the fresh snow beneath the trees. While at Champaign, Ill., I met with a flock of seven or eight males of this species on Nov. 12, 1889. They were well concealed among the branches of some willows still green with foliage, and I was only attracted by their loud, sharp notes. I secured but

one specimen, a male, and failed to discover the flock again. During a collecting trip in the spring of 1889, Mr. Charles F. Adams secured one fine male of this species near Champaign, Ill., which he found feeding among some sugar maples. The trees were in leaf, and neighboring trees in blossom, and although the exact date was not recorded, it is believed that it was near the first of May, as at that time the Warbler migration was well advanced, and many species were present. From these records it would seem that the Evening Grosbeak is not only a winter straggler, but a spring and fall visitor as well, which may be due to the better condition of its favorite food at such times in more southerly localities.

2. **Carpodacus purpureus.** PURPLE FINCH.—A common winter visitor, appearing late in the fall and remaining until May. Its abundance depends very much on the food supply which is chiefly buttonwood or sycamore balls and the seeds of various weeds. During the winter of 1888-89, the supply of hempseed and sycamore balls was unusual, and in consequence the Purple Finch was one of the most common winter birds. Flocks of many hundreds remained, and their songs could be heard almost any sunn yday in winter.

3. **Loxia curvirostra minor.** AMERICAN CROSSBILL.—Very erratic in its visits here. This may be owing to the small amount of pine to be found, but more likely to some other cause, as while here it does not seem to seek the pines so much as some other resorts. I have frequently found them feeding in apple and pear trees where the fruit had remained on and had been frozen. I also noticed one flock feeding on buds of the common cottonwood, and I remained beneath the tree some time watching them while parts of the buds dropped about me.

4. **Loxia leucoptera.** WHITE-WINGED CROSSBILL.—As irregular as the last, and much more rare of late years. Single specimens are sometimes found along with a flock of the red species.

5. **Acanthis linaria.** REDPOLL.—A rare winter visitant. Only seen in February.

6. **Spinus tristis.** AMERICAN GOLDFINCH.—Resident. Found in large flocks in winter when it frequents patches of weeds and hemp and the borders of timber. Commonly seen about the houses in town in May and again in July and August, coming to breed.

7. **Spinus pinus.** PINE SISKIN.—Found plentifully in winter and at the approach of spring. A very unsuspicious bird often allowing one to advance within two or three feet of it while feeding. I have usually foun them in small flocks of a dozen or more about pines and evergreens.

8. **Calcarius lapponicus.** LAPLAND LONGSPUR.—Casual winter visitor. Sometimes appearing late in the fall before the first snow. It is found associated with the Horned Larks. Often when a flock of Larks is flying overhead, I have heard the twittering notes of this Longspur coming from among them. In February when the river is usually frozen over, I have seen them on the ice where sand had been scattered by passing wagons.

9. **Calcarius pictus.** SMITH'S LONGSPUR. — The Painted Longspur is a regular spring and fall migrant through Illinois. It seems more plentiful in the fall than in the spring, and its sojourn is usually more protracted. I have found them on many occasions in the fall, from early October until the middle of November. At such times they frequent stubble fields of oats or wheat, which have been well grown up with short grass and weeds. I have also found large flocks of them among the lowlands about Lima Lake, where they lie closely in the short grass. This species is seldom found associated with other birds. They often congregate in large flocks of several hundreds, and when such a flock has settled in good cover one may approach fairly into the midst of them without becoming aware of their presence, until with one impulse all will arise and, uttering their rapid, twittering notes, circle about high in the air for some time, and perhaps fly far away, unless the intruder remain concealed and quiet, when they will drop in again all about him. During the migration one who is perfectly familiar with their note may often observe flocks of them flying rapidly over at a great height, often scarcely perceptible, and constantly uttering the notes, but unless he should find their particular feeding ground, it would be useless to search for them. This is particularly the case in the spring, when many flocks pass over, and should one alight and be disturbed, they seldom return, but seem restless and anxious to complete their long journey.

10. **Poocætes gramineus.** VESPER SPARROW. — Very common during migrations, not often remaining to breed, though occasionally its pleasing notes may be heard during the summer months.

11. **Ammodramus sandwichensis savanna.** SAVANNA SPARROW.—One of our most common Sparrows in spring and fall, often associated with other species of its genus as well as with the Song and Swamp Sparrows. It frequents the uplands where it may usually be found in stubble fields and patches of swamp grass or weeds.

12. **Ammodramus savannarum passerinus.** GRASSHOPPER SPARROW. —A common summer resident arriving by the middle of April, and frequenting the clover fields, where its familiar subdued notes may be heard throughout the spring and summer, as the bird sways in the breeze from a weed top, or crouches upon a fence post.

13. **Ammodramus henslowii.** HENSLOW'S SPARROW. — Abundant spring migrant, and not uncommon during the summer and fall, although then less conspicuous from its quietness and more restricted haunts. The migration takes place in April, and is at its height from the 15th until the 25th of that month. At this time the birds are in their best plumage, and their habits may be most successfully studied. From dawn until two or three hours after sunrise, while the dew still sparkles on the grass, they will be found most active and full of life. In this locality they not only frequent the marshes and bottom lands but are also found in upland clover fields and fields of timothy, and in fact I have discovered them in a great variety of places, though their favorite haunts seem to be among the dense growth of swamp grass of our bottom lands. I have known

several pairs to breed in a clover field of some ten acres or more, through which extends a swampy brook well lined with weeds and a few patches of tall grass. During the spring migration large numbers of this species, as well as Leconte's and the Yellow-winged Sparrow frequent this field, and often in an hour's walk I have flushed several dozen of them which on taking flight would usually seek the tall grass and weeds about the brook.

15. **Ammodramus leconteii**. LECONTE'S SPARROW.— Fully as abundant as the last species, and perhaps more evenly distributed locally. The habits of Leconte's Sparrow are similar to those of Henslow's, and its migration takes place at about the same time. My earliest record for the spring migration was on March 14, 1889, when I shot a single male bird which was flushed from among short blue-grass, in a large open field. This Sparrow like the last two is often found in wheat or oat stubble grown up with grass and smartweed, where the hollows usually contain thick shelter to which they resort when disturbed. The young Leconte's and Henslow's Sparrows are sometimes found in August in immature plumage, but as yet I have failed to find any positive proof of the former species breeding here.

16. **Ammodramus caudacutus nelsoni**. NELSON'S SPARROW.—Apparently of very rare occurrence here, as all my searches have revealed but a single specimen, a male shot on April 26, 1889, in a reedy marsh.

17. **Chondestes grammacus**. LARK SPARROW.— Common summer resident, reaching here from the south about May 1. Old pasture fields and fields of corn are most frequented by them, where they often sing for hours from the top of some dead tree. The nest is placed on or near the ground, often among crab sprouts in grassy places.

18. **Zonotrichia querula**. HARRIS'S SPARROW.—I have shot and preserved two specimens, a male and a female, of this species. They were found along a brush fence in a small clump of bushes where others were observed. The species is probably a regular, but rare, migrant as far east as the Mississippi bottoms.

19. **Zonotrichia leucophrys**. WHITE-CROWNED SPARROW.—A common migrant, more often seen in spring than fall when they migrate in small bands of half a dozen or more, sometimes in with flocks of the White-throated Sparrows. They seem to prefer bushy pastures and fences of osage hedge.

20. **Zonotrichia albicollis**. WHITE-THROATED SPARROW.— Found here in greater numbers than the last; both arrive from the south in some numbers by the middle of April and remain until about May 10. The song is very pleasant, though not loud.

21. **Spizella monticola**. TREE SPARROW.—Very common in winter. This and the Junco are found in about equal numbers in winter, both species remaining late in spring, sometimes until the first of May.

22. **Spizella socialis**. CHIPPING SPARROW.—Abundant summer resident, arriving sometimes by March 20. Two or three broods are raised here. The nests are built in shrubs and cedars in the city suburbs.

23. **Spizella pallida**. CLAY-COLORED SPARROW.—I have occasionally met with this species during the migrations. Early in May, 1887, I collected a number of specimens, and found them quite common in pasture and stubble fields near the city.

24. **Spizella pusilla**. FIELD SPARROW.—The Field Sparrow arrives from the south by the first of April, and is soon dispersed over the fields and pastures in considerable numbers. The song may be heard at any time in the spring or summer. Two broods at least are raised, and I have found the full set of fresh eggs by May 1. Nests are built in brush and bushes, among dead grass, or on the ground. I have found nests with eggs in cedar bushes five or six feet high.

25. **Junco hyemalis**. SLATE-COLORED JUNCO.—During the winter months this bird is common about the houses at the approach of or during storms. When the weather is pleasant they seek the fields and orchards or borders of woods where brush piles are found. I have records of the occurrence of this species as early as September 1, and on one occasion I met with a male bird on May 24, which was apparently in a sound state.

26. **Peucæa æstivalis bachmanii**. BACHMAN'S SPARROW.—Early in May, 1887, I shot three specimens of this bird and saw two others. They were in an old orchard of apple trees which were at that time in full blossom. In the spring of 1889, while searching the wooded bottom lands of Missouri just across the river from Quincy, I saw two others which, from the note and appearance, must have been of this species, though I was unable to obtain them. They were among scrub oaks and brush in a clearing. This was between the 1st and 5th of May; the exact date was not kept.

27. **Melospiza fasciata**. SONG SPARROW.—Common during migrations, and a very few remain throughout the year.

28. **Melospiza lincolni**. LINCOLN'S SPARROW.—Found in considerable numbers during the spring migrations about the first week in May. Less abundant in fall, and more irregular in its occurrence here.

29. **Melospiza georgiana**. SWAMP SPARROW.—In the spring and fall migrations this Sparrow is a common inhabitant of the bottom lands, or wherever rank grass, weeds, and brush are found. They are most abundant about the last of April, when all the marshes are full of them.

30. **Passerella iliaca**. FOX SPARROW.—Common in spring and fall. They arrive from the south by the middle of March, and often associate with the Towhee, seeking the deepest thickets and brush heaps, particularly in clearings where oak brush abounds. The song, which I have but rarely heard, is truly beautiful.

31. **Pipilo erythrophthalmus**. TOWHEE.—Abundant summer resident. It arrives from the south early in March, and nesting begins by April 1. I have found dozens of nests of this bird, from the middle of April until the last of August, with fresh eggs, and at least two thirds of those examined contained Cowbirds' eggs. They are built on the ground or in bushes near the ground. I have found them occasionally in roots or grass hanging along creek banks, and in the tops of fallen trees.

32. **Cardinalis cardinalis.** CARDINAL.—Abundant resident, particularly in the heavily wooded bottom lands of the Mississippi on both sides of the river. Nesting begins early in April or even by the last of March. I have found good-sized young by the middle of April. Nests are placed in bushes and thorn trees, near the ground, or in roots of fallen trees. The eggs are two, three, or four in number.

33. **Habia ludoviciana.** ROSE-BREASTED GROSBEAK. — Common summer resident. This is a well-known song bird, and is found in many parts of the city as well as in the deepest woods. The nests, of which I have examined a large number, are placed in the tops of trees and saplings. The eggs can be seen from below in most cases. They are from four to six in number.

34. **Passerina cyanea.** INDIGO BUNTING.—A well known bird in this locality, coming from the south in late April or by the first of May. By the last of May nesting has begun. Three or four eggs are deposited, and the Cowbird usually adds one or more. The nest is built in grass, weeds, or briars, or in the sprouts at the foot of a tree.

35. **Spiza americana.** DICKCISSEL.—Abundant summer resident, breeding in clover fields, where many nests can be found in a limited area. These are placed in the tops of clumps of clover or in shorter growth. I have found them sunk in the ground. The eggs are two, three, or four, in number.

DESCRIPTIONS OF A NEW SPECIES AND THREE NEW SUBSPECIES OF BIRDS FROM ARIZONA.

BY DR. EDGAR A. MEARNS, U. S. A.

Junco ridgwayi, sp. nov.

SP. CHAR. — Above similar to *J. caniceps;* below indistinguishable from *J. annectens.*

Adult Male (Type, No. 2770, Coll. E. A. Mearns, Whipple Barracks, Arizona, April 22, 1884): — Upper parts of head and neck, with rump, throat and jugulum, ash-gray. Lores grayish black. Scapulars and interscapular region bright rufous; outer webs of inner tertiaries tinged with the same. Abdomen and crissum white. Sides pinkish. Wings and tail dark grayish ash, the latter with the outer rectrix wholly white, the second white except a dusky line along each edge, and the third with a long white terminal stripe nearly confined to the inner web. Bill flesh color, slightly tipped with black. Feet and claws light brown. Length, 163; alar ex-

panse, 257; wing, 80; tail, 77; culmen, 12; tarsus, 20.5; middle toe and claw, 20; middle claw, 6 mm.

Adult Female (No. 11,187, U. S. Nat. Mus., Coll. C. Drexler, Fort Bridger, Utah, May 28, 1858): — Similar to the male, but duller, with an olive wash to the gray of head, and the plumage generally faded to a browner color, which is probably the result of exposure, the bird being in worn breeding dress. Size smaller.

I take pleasure in naming this handsome Junco after Mr. Robert Ridgway, of Washington, D. C. It was abundant at Whipple Barracks and in the vicinity of the neighboring town of Prescott, Arizona, during the latter part of April, 1884, at which season all of the four species of this genus found by Dr. Coues during his long residence in this locality had departed, with the exception of a few individuals of *Junco oregonus shufeldti* that still lingered in the mixed woods of oaks and pines, in company with the present species. I preserved but a single specimen of each, and cannot now refrain from smiling at the recollection of my misdirected zeal in garnering series of specimens of Flickers, Long-crested Jays, Black-headed Grosbeaks and other conspicuous but well-known birds, while these two Juncos, both of which were new to science, were almost ignored. I inferred that *Junco ridgwayi* was then on its breeding ground, the migrants having nearly all departed, a supposition that I was unable to verify, however, never having visited the locality since then during the breeding season.

An example of this species was taken in New Mexico, as I am informed by Mr. Ridgway, to whom I am indebted for the loan of two breeding birds of this species — male and female, taken at Fort Bridger, Utah, by C. Drexler on May 28, 1858 — and for many other specimens, needed for comparison, from the National Museum collection. Its habitat will probably be found to include the lower evergreen-forested areas of the Great Basin region from Utah southward.

Spinus tristis pallidus subsp. nov.

Mr. J. A. Allen has called attention to this well-marked geographical race of the American Goldfinch, in his annotations to Mr. W. E. D. Scott's paper on Arizona birds, published in the Auk, Vol. IV, p. 198. His remarks are as follows: —

"Six specimens in winter plumage are strikingly different from the Eastern bird in corresponding plumage. The white edging of the feathers of the wing and tail in the Arizona bird is much broader; the dorsal surface is much lighter, the yellow of the throat is much purer, lacking almost wholly the greenish shade seen in the Eastern bird; the white of the belly is purer, with a faint fulvous instead of grayish shade; the sides are washed with a paler shade of fulvous brown, in quite strong contrast, however, with the almost pure, solid white of the abdomen and lower tail-coverts. If summer specimens should show correspondingly paler tints in comparison with Eastern examples, as they are almost sure to do, the Arizona form is quite as well entitled to recognition as a subspecies as are several of the pallid forms of Sparrows which have been accorded this rank."

With commendable and characteristic conservatism, Mr. Allen abstained from imposing a name upon this race until summer specimens should reveal more clearly its true status. My task, therefore, is reduced to describing the breeding dress, and naming the new subspecies.

Adult Male in Breeding Plumage (Type, No. 6311, Coll. E. A. Mearns, Fort Verde, Yavapai County, in central Arizona, May 3, 1888): — Similar to the corresponding plumage of Eastern *S. tristis*, but with the black cap larger and extending farther back on the head, the general color decidedly paler, and all of the white markings increased in area. The wing bands, formed by the white tips of the greater and lesser coverts, are considerably broader. The secondaries and tips of primaries are more broadly edged with white, as are the tail-feathers, the inner webs of which are more largely occupied by white. Irides hazel. Bill brownish yellow at base, shading to dusky olive at tip. Feet pale yellow, claws brown. Length, 138; alar expanse, 240; wing, 80; tail, 57; culmen, 10.5; bill, measured from nostril, 8.7; gape, 12; from tip of bill to centre of pupil, 16; from tip of bill to occiput, 26; from base of bill to occiput, 18; length of tibia, 23; tarsus, 13.5; middle toe and claw, 15.5; middle claw, 5.3; hallux with its claw, 13; claw of hallux, 6 mm.

A quite large series of winter specimens of both sexes in my collection, from Fort Verde, Arizona, fully confirms Mr. Allen's description and conclusions based on six specimens in Mr. Scott's collection. The winter plumage is much paler than that of the Eastern bird, with much extension of the white, some specimens having tails that are nearly all white, in which condition they differ in appearance from Eastern *tristis* about as *Acanthis hornemannii* does from *A. linaria*. This pale race will doubtless

prove to be an inhabitant of the whole area of the Great Basin. It is considerably larger than the Eastern bird, as shown in the following

MEASUREMENTS.*

	Spinus tristis.						*Spinus tristis pallidus.*					
	26 MALES (from New York).			7 FEMALES (from New York).			10 MALES (from Arizona).			11 FEMALES (from Arizona).		
	Average	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum
Length . . .	131.6	139.7	125.2	125.0	130.0	120.7	135.0	140.0	130.0	132.0	136.0	127.0
Expanse . . .	227.6	231.9	222.3	218.0	221.2	211.1	238.0	243.0	230.0	229.0	233.0	225.0
Wing	72.4	76.2	67.6	70.4	72.4	67.1	78.0	80.0	77.0	75.0	76.0	74.0
Tail	50.8	53.1	47.8	49.5	55.6	47.8	56.0	58.0	55.0	54.0	58.0	51.0
Culmen . . .	10.2	10.9	9.4	10.2	10.4	9.4	10.9	11.8	10.5	10.7	11.5	10.0
Bill from nostril. . . .	8.1	8.6	7.6	8.6	8.6	8.6	8.7	8.7	8.7	8.5	8.5	8.4
Gape	10.7	10.9	10.2	11.7	12.4	10.7	11.5	12.0	10.5	11.4	12.0	10.5
Tarsus	13.7	14.2	13.2	14.0	14.2	13.5	13.8	15.0	13.0	14.0	15.0	13.0
Middle toe and claw . .	15.5	16.3	14.1	15.2	15.5	15.0	16.0	17.0	15.0	16.0	17.0	15.0
Middle toe . .	10.9	11.2	10.7	10.2	10.4	9.9	12.0	12.0	12.0	10.0	10.0	10.0
Middle claw .	5.6	5.8	5.1	5.1	5.1	5.1	5.3	6.0	5.0	5.3	6.0	4.5

Coccothraustes vespertina montana Ridgway.

On comparing thirteen Evening Grosbeaks from Arizona with seventy-two specimens from Fort Snelling, Minnesota, all collected by the writer, the Arizona form appeared to be separable from the Eastern, as a subspecies. Through the kindness of Messrs. Robert Ridgway, J. A. Allen, and George B. Sennett, I was enabled to add to this material all of these Grosbeaks in the United States National Museum at Washington, in the American Museum of Natural History of New York, and in the private collection of Mr. Sennett, thus bringing together about 150 specimens. From the study of this quite extensive material, it became apparent that the Western bird, *in general*, is very different from that inhabiting the region of the Great Lakes and north-central portion of North America. The distinction rests entirely on the female, such apparent characters as may seem to exist in the male, when individual examples are compared, being completely overlapped and extinguished when large series are

*In millimetres; taken from specimens in the flesh, by the author.

brought together. Western females have the parts which are of an ashen color in the Eastern bird of a yellowish brown; and this striking difference pertains to all Western birds, as well as to those from Mexico. I am unable to detect any marked difference between specimens from British Columbia and the northwestern United States, and those from the Valley of Mexico and the highlands of Vera Cruz. Specimens before me from British Columbia, Washington, Oregon, California, Utah, Arizona, New Mexico, Valley of Mexico, and Mirador (near Vera Cruz), are all examples of the western subspecies, which must be called *montana*, that name having been applied by Mr. Ridgway to the Evening Grosbeak inhabiting the southern Rocky Mountains of the United States and thence southward through the highlands of Mexico into Central America, although none of the characters assigned by him are adequate to separate the Western bird from that of the Great Lake region, the diagnosis having been based on the characters of the male, and the describer's intention having been to separate from the northern bird at large that inhabiting Mexico and the southern Rocky Mountain region, as shown by his assignment of habitats to the two forms: "HAB. (Var. *vespertina*): Pacific coast to Rocky Mountains; northern America east to Lake Superior. (Var. *montana*): Southern Rocky Mountains of United States into Mexico; Orizaba! (SCLATER, 1860, 251); Vera Cruz (alpine regions, breeding) SUMICHRAST, Pr. Bost. Soc., I, 550; Guatemala, SALVIN." As the subspecies *montana* has been dropped, not appearing in the A. O. U. Check-List nor in Mr. Ridgway's Manual of North American Birds, the characters on which it was based having been shown to be inconstant, I have enumerated it in the present article as new, since here first described, retaining Mr. Ridgway's name, his type, from Cantonment Burgwin, New Mexico, being an example of the new subspecies.

Adult Male (Type, No. 11,960, U. S. National Museum, collected by W. W. Anderson, at Cantonment Burgwin, New Mexico, June 3, 1859):— Indistinguishable from northeastern specimens of true *C. vespertina*.

Adult Female (Type, No. 4163, Coll. E. A. Mearns, Oak Creek, near Fort Verde, Yavapai County, Arizona, August 14, 1885): — Pattern of markings as in *C. vespertina*, but the color of most of the body is brown, mixed with olive yellow, and tinged with gray, instead of being wholly grayish as in *vespertina*. The black stripe at each side of the throat and

the dark markings of the wings and tail, are less restricted. The irides are hazel, the entire bill light yellowish green, the tarsi and toes pale yellowish brown, and the claws dark brown. The general color is yellowish brown instead of grayish.

Young Male in First Plumage (No. 4165, Coll. E. A. Mearns, Oak Creek, thirty miles north of Fort Verde, Arizona, August 14, 1885) :—In general appearance it resembles the female more than the male, although traces of the male dress are present, as indications of the frontal crescent, black patch on crown, dark mantle, white tertials, and wholly black primaries and tail-feathers. The grayish tinge is entirely wanting. The body is olivaceous buff, more greenish above and brownish below; frontal crescent buff; crown patch with a brownish black spot occupying the centre of each feather; stripe on each side of throat dusky olive; interscapular region darker olivaceous; rump with blackish edging to the feathers; upper tail-coverts black, broadly edged with greenish buff, the longest of them black throughout; inner greater wing-coverts sulphur-yellow; tertials smoky white, with a slight amount of dusky on their inner edge; feathers of crissum white, edged with a pale buff; bill greenish olive, yellowish green only at extreme base; tarsus, toes and claws brown. Another specimen (No. 4164, ♂, juv.), presumably belonging to the same brood, of which the female above described was the parent, differs in having the crown patch indicated by a slightly darker olivaceous coloring instead of having blackish centres to the feathers, in having the longest upper tail-coverts tipped with buff, and more black on the inner edge of the tertials, though much less in amount than in adult females. There is also a small white spot at the tip of the inner web of the outer tail-feather. The bill, tarsus, toes, and claws are a little less dark than in the preceding specimen, although both have these parts darker than in either parent.

Remarks.—In fully adult males, of both subspecies, the tertials lose the smoke-brown tint and the black inner edging, becoming pure white; and the tail-feathers lose the white on their inner webs, becoming black throughout. There is considerable variation in respect to the breadth of the yellow frontal crescent of both forms. In most specimens a very narrow edging of black is interposed between the maxilla and the yellow front, which occasionally appears as a broad black band encroaching on the yellow, but is quite frequently absent. The broadest front in the series is in an immature bird from Hudson's Bay Territory, specimens from Minnesota, Arizona, and Washington Territory, respectively, coming next to it, in this respect; and the narrowest front is seen in an immature male from the city of Mexico, specimens from Minnesota, New Mexico, Washington, California, and Arizona following in order after it. The original type of *mon-*

tana, from New Mexico, has the frontal stripe quite as broad as in average Minnesota specimens. In Western and Southern birds there is a slight average increase in the intensity of the yellow in males. Season appears to exert but little influence upon the plumage, though the yellowest males were taken in spring, and Western females average browner in winter, with an increase of the olive yellow in autumn. The brownest females of *C. vespertina montana* come from the extreme localities of Walla Walla and Mirador, and were taken in January and June, respectively. The variation in size in the subspecies *montana*, throughout its range, is almost inappreciable, measurements of specimens from the northwestern United States averaging almost exactly the same as those from southern Mexico, while those from intervening localities show only slight individual variations.

MEASUREMENTS.*

	Coccothraustes vespertina (from Minnesota).						*Coccothraustes vespertina montana* (from Arizona).					
	13 MALES			13 FEMALES			3 MALES			8 FEMALES		
	Average	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum
Length	203	210	199	201	205	190	202	204	200	200	204	195
Expanse	348	361	338	342	353	329	349	357	340	343	348	339
Wing	115	122	110	113	118	110	116	120	112	112	115	110
Tail	72	76	66	69	73	65	72	77	70	70	72	68
Culmen (chord)	19.5	20.6	18.3	19.5	20.5	18.7	21	21	21	20.6	21.5	19.5
Bill from nostril	15.4	16.4	15	15.6	10.3	15	16.2	16.5	16	15.7	16.5	15
Gape	21.6	22.5	21	21.7	22.5	21	21.7	22	21	20	23	21
Height of bill at base	15.5	16.2	14.8	15.5	16	15	15.7	17	15	15	15.5	14.5
Width of bill at base	14.7	15.2	14	14.6	15.2	14	14.7	15	14.5	14.5	15.2	14
Tarsus	21.9	23	21	22	23.5	21	20.8	21	20.5	21.3	22	20
Middle toe and claw	24.2	25	23	24.1	26	23	24.5	26	23	24.2	26	23.5
Middle claw	7.3	8.2	6.3	7.5	8	7	7	8	6	7.3	8.5	7.
Hallux with its claws	17.8	19	16.5	17.5	18.5	16.5	16	16	16	16	16.1	15.9

Melanerpes formicivorus aculeatus subsp. nov.

A comparison of more than fifty Arizona specimens of this species with the series of *Melanerpes formicivorus bairdi* from

* In millimetres; taken from specimens in the flesh, by the author.

the Pacific coast of the United States, *M. formicivorus* from southeastern Mexico and Central America, and *M. formicivorus angustifrons* from Lower California, in the American Museum of Natural History, New York, the U. S. National Museum at Washington, and the cabinet of Mr. George B. Sennett, shows that it is subspecifically separable from either of the above forms. It differs from all of them in the small size and peculiar shape of the bill, but is in most respects intermediate between *M. formicivorus bairdi* and *M. formicivorus*.

Adult (Type, No. 6345, Coll. E. A. Mearns, Squaw Peak, central Arizona, May 9, 1888) :—General size and coloring intermediate between *M. formicivorus* and *M. formicivorus bairdi;* throat less yellow than in either of them; bill shorter, more slender, and less arcuate than in either of the other forms of *M. formicivorus;* white striping of chest more than in the Pacific coast form, less than in *formicivorus*.

Young in First Plumage (No. 5556, ♀, juv.. Coll. E. A. Mearns, Baker's Butte, Mogollon Mountains, central Arizona, July 18, 1887) : — Similar to adults, but lacking the black band across the fore part of crown, the whole top of the head being red, *in both sexes;* colors duller, with the quill-feathers, neck and breast slightly brownish; pectoral band broader, with less of the white striping; black streaks of sides less sharply defined, having a blurred appearance.

Habitat.— Southwestern United States, southward through the mountainous portions of western Mexico.

MEASUREMENTS* OF *Melanerpes formicivorus aculeatus* FROM ARIZONA.

	17 MALES.			17 FEMALES.			BOTH SEXES (34 specimens).		
	Average	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum
Length	242	250	232	237	248	231	240	250	231
Alar expanse	457	472	442	450	475	437	454	475	437
Wing	144	151	137	144	150	140	144	151	137
Tail	89	97	82	90	95	83	89	97	82
Culmen (chord)	26.3	29	24	25.5	28	23	25.9	29	23
Tarsus	22	24	21	21.5	24	19	21.7	24	19
Middle toe and claw	25.2	27	24	24.6	26	22.5	24.9	27	22.5

*In millimetres; taken in the flesh by the author.

MEASUREMENTS OF 12 SPECIMENS OF *Melanerpes formicivorus bairdi* FROM CALIFORNIA.

				Wing	Tail	Culmen
1,028	♂ ad.	San Fernando Valley, Cala...	E. C. Thurber	150	96	31.5
884	♂ ad.	San Gabriel, California	"	145	96	30
44,121	♂ ad.	California (F. Gruber).	Am. Mus. Nat. Hist.	147	97	30.5
44,118	♂ ad.	California (J. Krider)	"	153	93	31
25,661	♂ ad.	Cosumnes River	"	150	92	30.5
929	♂ ad.	Newcastle, California.	George B. Sennett	145	86	33.5
. . . .	♂ ad.	Sebastopol, California	"	150	88	31.5
675	♀ ad.	Alhambra, California	E. C. Thurber	145	87	27.5
884	♀ ad.	San Gabriel, California	"	145	90	28.5
25,662	♀ ad.	California.	Am. Mus. Nat. Hist.	145	84	29.5
930	♀ ad.	Newcastle, California	George B. Sennett	140	81	28
. . .	♀ ad.	Sebastopol, California	"	148	82	28

COMPARATIVE MEASUREMENTS OF THE FOUR SUBSPECIES OF *Melanerpes formicivorus.*

Average of *M. f. bairdi* from California (7 males and 5 females)	147	89	30
Maximum " " " " " " "	153	97	33.5
Minimum " " " " " " "	140	81	27.5
Average of *M. formicivorus* from S. E. Mexico and Central America*	141	89	29.5
Maximum " " " " " " " "	150	91	31
Minimum " " " " " " " "	135	79	28.9
Average of 34 specimens of *M. f. aculeatus* from Arizona	144	89	25.9
Maximum " " " " " " "	151	97	29
Minimum " " " " " " "	137	82	23
Average of *M. f. angustifrons* from Lower California*	137	86	30.5
Maximum " " " " " "	141	89	31.8
Minimum " " " " " "	132	84	29.2

OBSERVATIONS ON THE AVIFAUNA OF PORTIONS OF ARIZONA.

BY EDGAR A. MEARNS, M. D.

(*Concluded from Vol. VII, p. 55.*)

Dryobates villosus hyloscopus. CABANIS'S WOODPECKER. — Breeds commonly throughout the pine belt, often ascending higher in summer, then preferring aspens to the fir and spruce woods of high altitudes. It very rarely descends to the cottonwoods of the Verde Valley to fraternize with its smaller relative, Baird's Woodpecker, and only when the moun-

*Taken from Ridgway's Manual of North American Birds.

tain timber is icy or the weather uncommonly fierce; then it is usually accompanied by flocks of Cassin's Purple Finches, Red-backed Juncos, and its boon companions, the Slender-billed Nuthatches. About the middle of June the young leave their nests, and soon after make a partial migration downward towards the lower border of the pine belt, in common with many other birds that breed at high levels.

Dryobates pubescens orecœcus. BATCHELDER'S WOODPECKER. — This bird breeds sparingly through the *Pinus ponderosa* belt, ascending into the spruce zone on the San Francisco cone. It is the rarest of the Woodpeckers here enumerated. A male selected a sounding dry aspen, and drummed regularly above my camp, high up on San Francisco Mountain during the early part of June, 1887, at which season the nights were still intensely cold and this species was probably not yet breeding.

Picoides americanus dorsalis. ALPINE THREE-TOED WOODPECKER. — Breeds commonly throughout the pine belt, seldom ascending far into the spruce woods of the highest peaks. On the northwestern slope of San Francisco Mountain I discovered a nest of this species on June 8, 1887. The female was seen alone, pecking at a large yellow pine which, although dead, still retained its bark and was quite solid. While feeding, she uttered a peculiar, harsh, nasal cry. I shot her, and then noticed a small, neatly bored hole in the south side of the pine trunk, about thirty feet from the ground and away from branches. With the aid of a rope, and taking a start from the saddle, I was scarcely able to climb to the nest, which the male did not quit until I was well up; then he came out and uttered a sudden, sharp *whip-whip-whip* in a menacing tone, remaining hard by while I worked with saw and chisel. It took me nearly half an hour to make an opening sufficiently large to admit the hand, as the burrow was situated so extraordinarily deep. Two young, male and female, with feathers just sprouting, were found on a bed of small chips at the bottom of a burrow, not more than eight inches lower than the entrance, but in the very heart of the tree, the cavity being oblique and pear-shaped, and having the strong odor characteristic of Woodpeckers' nests in general. Both parents and their progeny were preserved, and are now in the American Museum collection. The irides of the adults were dark cherry-red; their feet, claws and basal half of mandible plumbeous, the rest of the bill being plumbeous black.

Sphyrapicus thyroideus. WILLIAMSON'S SAPSUCKER. — Breeds very commonly at the highest altitudes, frequenting the spruce and fir woods. It seldom descends far into the pine belt during the breeding season, although it is found in the pines in winter, occasionally descending even to the cedars in severe weather; and after the nesting season it frequently roves down to the pine woods with its young. When shot, it usually fastened its claws into the balsam bark and remained hanging there after life was extinct.

The specimens of this bird procured during the breeding season exhibit certain peculiarities of plumage, as compared with Pacific coast examples and winter migrants to Arizona, which, if constant, would warrant

the separation of the resident Arizona bird as a subspecies. It is somewhat smaller than northwestern specimens, and much blacker, the white being more restricted throughout. In some males no white spots are visible on the outside of the primaries or secondaries, even when the wing is spread; the white bars on the axillars, lining of wings, and sides are much more restricted; the under tail-coverts are black, very narrowly edged with white; the white head stripes are narrower; and there is no concealed white in the interscapular region. One male (No. 5574, Baker's Butte, Arizona, July 23, 1887) has the belly sap-green, instead of the usual citron-yellow. The adult female is likewise darker, the dark areas being broader, and the white proportionately reduced. In Californian specimens the light bands on the back, wings, and sides are brownish, similar to the head, while they are nearly white in breeding females from Arizona. The pectoral patch is also more solidly black in the Arizona bird. A young female (No. 5559) in first plumage taken in the Mogollon Mountains, Arizona, July 18, 1887, has strong indications of the yellow belly. Its plumage is duller than in the adult of the same sex, lacks the black chest patch, and has the white bars replaced by brown similar in color to the head. A much younger specimen (No. 5552), sex undetermined, has a narrow band of brownish white, slightly tinged with greenish yellow, down the middle of the belly, in other respects agreeing with the preceding. Some winter specimens from Arizona are indistinguishable from others from Fort Crook, California. These might be regarded as northern migrants; but one male from the last-named locality lacks the white spots on the wing quills, as in Arizona specimens; and one Arizona resident has as much white spotting as the average from California. In making the comparison of these birds, I have examined all the material in the National Museum at Washington, in the American Museum of Natural History of New York, and in several private collections. I am also under obligations to Dr. C. Hart Merriam for the opportunity of examining the series of specimens of this Sapsucker collected by him in Arizona, and belonging to the biological collections of the U. S. Department of Agriculture. As the result, it may be stated that the differences described appear to be largely individual, to some extent geographical, and possibly dependent somewhat on season; but the material available for study is insufficient to enable me to decide how much is due to each of these influences. The series of Arizona summer specimens averages darker, with the pale tints whiter. The difference cannot be wholly due to season, unless several of the specimens examined from other localities have erroneous labels.

Melanerpes formicivorus aculeatus.—A very common resident through the pine belt, breeding plentifully. I have found it as high as the spruce forests, but never in them. It is essentially a bird of the pines, only occasionally descending to the cottonwoods of the low valleys. The oaks which are scattered through the lower pine zone supply a large share of its food. Its habit of industriously hoarding food in the bark of pines, and in all sorts of chinks and hollows, is well known. These

stores are the source of unending quarrels between this Woodpecker and its numerous pilfering enemies; and I have laid its supplies under contribution myself, when short of provisions and lost from the command with which I had been travelling, by filling my saddlebags with half-dried acorns from under the loose bark of a dead pine.

Melanerpes torquatus. LEWIS'S WOODPECKER.—It may be said that the pine forests are the favorite home of this beautiful species, although its habits are so erratic that one must take counsel before making any positive assertion concerning it. I have never had proof of its breeding anywhere in Arizona, although I have found it at all seasons and places. It is a wandering bird, travelling about, usually in large flocks, and visiting all likely places for food and frolic. In midwinter it is often very abundant in the highest pine forests of the Mogollons and about Fort Whipple; but I have spent a whole summer in these mountains without seeing any of them; again, it was noted among the cottonwoods of the Santa Cruz and Rillitto in the vicinity of Tucson and Fort Lowell during the blazing weather of April. Sometimes it would come in great nombers in March and April to the oak woods bordering the streams near Fort Verde; or a pair or two would take up their abode in a grove of cottonwoods, and spend April and May, in the hot valley of the Rio Verde. Its movements, like those of the Eastern Red-headed Woodpecker, are probably largely governed by the food supply; and it doubtless breeds wherever it chances to be at the season, provided that food be plenty.

Colaptes cafer. RED-SHAFTED FLICKER.—Breeds commonly throughout the pine belt, ascending still higher.

Phalænoptilus nuttalli. POOR-WILL.—This interesting bird breeds abundantly throughout the pine belt. A set of perfectly fresh eggs was taken on the Mogollon Mountains, on July 3, 1886. Another set, taken near Flagstaff, contained large embryoes on May 27, 1888; and a couple of young were found the same day.

Chordeiles virginianus henryi. WESTERN NIGHTHAWK.—I have never known this species to infringe on the territory of the Texan Nighthawk during the breeding season; each keeps to its own ground, the latter being confined to the region below the pines, and the former residing in the pines and spruces, breeding in great numbers in these limited areas. A single migrant was taken at Fort Verde, on May 9, 1885. Two fresh eggs were taken at Flagstaff on June 18, 1887, in a level place, bestrewn with volcanic scoria, beneath the pines. In our summer camp, near the summit of the Mogollon Mountains, a small beetle was annoyingly abundant, flying into our tents in great numbers during the day, and at night swarming around our log fires. As the twilight gathered, hundreds of these Nighthawks appeared upon the scene, preying upon the troublesome insects. Careless of our presence at the fires and of the noisy hilarity of camp, they flitted through the smoke with astonishing freedom from diffidence, capturing myriads of the hated beetles, as they passed and repassed above, between, and around us, until their flickering forms

were as familiar as the stirring of the pine boughs overhead, and the fanning of their wings almost as little heeded. A couple of young, recently hatched, were found near the camp, on July 27, 1887, showing that two broods are reared the same year or that its season of reproduction is quite protracted. The voice of this species is quite unlike that of *Chordeiles texensis.*

Micropus melanoleucus. WHITE-THROATED SWIFT. — In Arizona this large and handsome Swift is very abundant in the vicinity of cañons and cliffs, in which it breeds from the altitude of Fort Verde (about 3400 feet) up to the highest peaks in the Territory. I saw them wheeling around the highest points of the San Francisco Mountains, and darting in and out of the jagged rocks, in June.

Trochilus alexandri. BLACK-CHINNED HUMMINGBIRD. — A summer resident in the zone of *Pinus ponderosa;* not seen higher.

Trochilus platycercus. BROAD-TAILED HUMMINGBIRD. — This beautiful Hummingbird is an inhabitant of the highest land of Arizona, being rarely encountered until one is well within the spruce belt, when it suddenly becomes extremely plentiful. About springs and willow-edged water-courses swarms of these gay birds congregate. Its boldness is without a parallel; it knows no fear. A member of our party on San Francisco Mountain wore a scarlet cap, but he found these audacious birds so troublesome from their constant attacks upon it that he was glad to pocket it in order to be rid of the irate little furies. A shrub grows on the mountain bearing purplish red flowers of which this species is extravagantly fond; and numbers of them may be closely watched by seating oneself amongst these plants. Its flight is accompanied by a metallic, screeching sound unlike that made by any other Hummer with which I am familiar, and I heard them continually, when riding through the forest, though they were invisible. It ranges to the very summit of San Francisco Mountain, being abundant in the highest timber.

Tyrannus vociferans. CASSIN'S KINGBIRD.—Breeds commonly throughout the pine forests. I found it in the uppermost timber on San Francisco Mountain in June, the altitude being nearly 12,000 feet. This conspicuous species likewise breeds in the low valleys of Arizona together with the Arkansas Kingbird (*T. verticalis*), nests of both species having been found at the same time in one cottonwood tree in the Verde Valley. On the Mogollon Mountains I saw them attack Crows and Western Red-tailed Hawks and drive them from the neighborhood of their nests after the spirited fashion of the Eastern Kingbird.

Contopus borealis. OLIVE-SIDED FLYCATCHER.—Breeds throughout the area under consideration, but is especially common in the higher belt of evergreen forest, in which it ranges almost to the timber line. It builds its nest near the tops of the tallest firs and balsams. Its characteristic cry of *whip-me-to*, given with such vigor and clearness of enunciation as to be almost startling, was continually heard when we were encamped at Smith's Big Spring, in the cañon or crater enfolded by the San Francisco peaks, opening to the east; and it was equally abundant in

the White Mountains and the higher spurs of the Mogollon range. Like many other mountain species it ranges down hill with its young after the breeding season. On Oak Creek, in the cypress belt below the pines, it appears in families during the first half of August.

Contopus pertinax. COUES's FLYCATCHER.—This bird was seen feeding its young on Baker's Butte, one of the higher spurs of the northern part of the Mogollon range, during the months of July and August. Its habits resemble those of the smaller species of this genus, rather than of the Olive-sided Flycatcher.

Contopus richardsonii. WESTERN WOOD PEWEE.—Breeds commonly throughout these mountains.

Empidonax difficilis. WESTERN FLYCATCHER.—Breeds commonly in the upper pines and through the spruce forest, almost reaching the timber line on San Francisco Mountain. It has a song and a very sweet call, besides a sharp chirp uttered when angry or frightened.

Empidonax pusillus. LITTLE FLYCATCHER.—This interesting bird, so abundant in the cottonwood and willow thickets along the lower streams of Arizona, was also occasionally seen, during the summer months, in the dwarf willows (*Salix rostrata*) that border the tiny streams and swampy hollows sometimes met with in traversing these mountains. It was noted at the altitude of 9000 feet at the foot of the San Francisco peaks.

Otocoris alpestris adusta. SCORCHED HORNED LARK.—The Horned Larks which were found breeding in the park-like openings in these mountain forests up to an altitude of 10,000 feet, have recently been referred to this race by Mr. Jonathan Dwight, Jr., in his monograph of this species, published in 'The Auk' for April, 1890. The form breeding in the neighboring valleys and low desert regions is also *adusta*, but not typical, tending considerably toward the more northern race *arenicola;* there would have been good grounds for the presumption that the bird breeding in these high mountain districts would prove to be typical *arenicola;* but such is not the fact.

Cyanocitta stelleri macrolopha. LONG-CRESTED JAY.—Resident to the altitude of 10,000 feet, ascending still further. On the San Franciscos, I found its nest with fresh eggs at the upper limit of the pines in the second week of June, 1887, while the nests found in the lower Mogollons during the last third of May of the same year all contained young.

Perisoreus canadensis capitalis. ROCKY MOUNTAIN JAY.—A quite common resident in the White Mountains of eastern Arizona; not seen in the northern Mogollons or the San Franciscos.

Corvus corax sinuatus. AMERICAN RAVEN.—Most of the Ravens of Arizona are the White-necked species, but the northern Raven is common in the mountain districts, nesting as low as 3000 feet, usually, if not invariably, upon ledges of cliffs.

Corvus americanus. AMERICAN CROW.—Breeds commonly in the pines and spruces throughout this area. It ascends to the timber line, breeding in the higher firs as well as in the pines.

Picicorvus columbianus. CLARKE'S NUTCRACKER.—Breeds abundant-

ly in the fir and spruce belt on the San Francisco cone; but on the crest of the more southern Mogollons, near Fort Apache, I have found it only in October. It breeds quite early, when the mountains are still covered with snow. I started for the San Franciscos on the 20th of May, 1887, but found them so deeply covered with snow that I was obliged to wait a fortnight for the snow to melt. When I reached the mountain the young birds were travelling with their parents. They often descended well into the pines, or ascended to the timber line, according as their fancy suggested. They were tame, noisy, and frolicsome, reminding me, as they played boisterously in the top of some dead tree, of a flock of Red-headed Woodpeckers.

Cyanocephalus cyanocephalus. PINON JAY.—Resident in the pine belt in summer, breeding as high as the upper limit of *Pinus ponderosa*, but descending to the cedars and piñons of the low country in autumn. They are wandering, erratic birds, occurring in immense numbers one season, and as conspicuous by their absence the next. They are highly gregarious; and flocks travelling over a more or less open country have the appearance of rolling along, the hindermost continually passing to the front, the whole flock screaming with cat-like voices. It was common around the base of San Francisco Mountain in June, 1887, the flocks having dispersed in pairs for the purpose of breeding. In July and August they again appeared in flocks composed of from several to many families, frequenting the juniper groves, having performed a downward migration in common with *Coccothraustes vespertina montana*, *Spinus pinus*, *Setophaga picta*, and many other mountain birds. With the approach of autumn, when the young are strong on the wing, they begin their gregarious wanderings over country high and low, sometimes assembling in flocks of thousands.

Molothrus ater obscurus. DWARF COWBIRD.—A common summer resident. Frequently seen accompanying the range cattle that graze on the mountains. Possibly some of the mountain Cowbirds are true *M. ater*, but of this I am uncertain, having shot but few specimens.

Xanthocephalus xanthocephalus. YELLOW-HEADED BLACKBIRD.—This handsome bird is a summer resident in such spots, in this high region, as are suited to its needs. It breeds in vast numbers at Mormon Lake, in the Mogollon Mountains; many of the nests examined by us there contained fresh eggs at the time of our visit—during the last week of May.

Sturnella magna neglecta. WESTERN MEADOWLARK.—Breeds in open, grassy places at any elevation. I have seen it as high as 10,000 feet. These mountain birds are the typical *neglecta* of the north; but, as might have been predicted, the resident Meadowlark of the low parts of Arizona exhibits the effects of its environment in certain peculiarities of plumage, having the pallid, scorched appearance common to most birds of desert regions.

Scolecophagus cyanocephalus. BREWER'S BLACKBIRD.—Breeds abundantly in dwarf willows (*Salix rostrata*) through the pine belt, where-

ever there is water. It was sometimes found nesting in aspens, pines, or spruces along streams, but its preference is for wet openings where there are willows. At Woods' stock ranch, on the road from the Verde Valley to Flagstaff, near the lower edge of the pine forest, most of the young were on wing by the 20th of June, 1886, many of them having tufts of down still adhering to the feathers, which gave them a comical aspect. A single nest contained eggs, four in number, nearly fresh; it was placed six feet above the ground in a young aspen (*Populus tremuloides*), and was coarsely fashioned of small twigs and stems of plants, with a lining of rootlets. At Mormon Lake, a more elevated locality than the above, all of many nests examined contained fresh eggs the last of May, 1887. At the base of San Francisco Mountain several pairs were found that were just building nests in the early part of June. On the mountains, as elsewhere, this bird likes the company of cattle.

Coccothraustes vespertina montana. WESTERN EVENING GROSBEAK.— This beautiful Grosbeak is partial to cañons, shady ravines and the vicinity of water during the breeding season, afterwards descending to the oak-wooded foot-hills with its young. At Fort Verde it sometimes appeared, in spring or fall, in the cottonwoods bordering the Verde River, feeding at times upon the berries of a species of mistletoe (*Phoradendron flavescens*), when it became exceedingly fat; but it was much more common in the neighboring foot-hills. In winter it feeds extensively on hackberries, seeds of the box-elder (*Negundo aceroides*), and the berries of several species of juniper.

Carpodacus cassini. CASSIN'S PURPLE FINCH. — A resident of the pines; sometimes driven into the low valleys in great numbers, in winter, by severe weather.

A young fledging supposed to be *Leucosticte australis*, proves to be another species, and the name should be expunged from page 49 of this paper.

Loxia curvirostra stricklandi. MEXICAN CROSSBILL.—One of the commonest birds in the pine forest, ascending into the spruces. I found it in June at the extreme lower edge of the pine belt. It is notably fond of drinking and bathing, and can generally be found about watering places at all times of the day. I noted the presence of this bird in all parts of the pine belt that I visited, whatever the season. Great numbers were occasionally found congregated around springs, in regions where water is very scarce.

Spinus psaltria. ARKANSAS GOLDFINCH. — A summer resident in the pine belt. Mountain specimens are typical *psaltria*; but those of the surrounding low regions manifest a tendency toward the subspecies *arizonæ*, varying in degree with the locality. Several birds taken in the Verde Valley are referable to *arizonæ*, though the majority are nearer to *psaltria*.

Spinus pinus. PINE SISKIN. — A resident species, frequently descending to the warm valleys in autumn, winter and spring. Although breeding in high places, many flocks may be found to have wandered down to the lower edge of the pines by the first week of July.

Poocætes gramineus confinis. WESTERN VESPER SPARROW.—A common summer resident in the upper pines. On San Francisco Mountain it was found breeding, in June, up to the altitude of about 10,000 feet, occupying grassy openings where there were a good many rocks.

Chondestes grammacus strigatus. WESTERN LARK SPARROW. — A very common summer resident through the pines. It ranged up to the true base of the San Francisco cone, the country above that point being obviously unsuited to it. It nests indifferently in bushes or upon the ground, and sings sweetly until midsummer.

Zonotrichia leucophrys. WHITE-CROWNED SPARROW. — I found it at the base of San Francisco Mountain, apparently breeding, in June. I also shot a bird which I supposed to be *Z. intermedia*, but could not find the specimen. The Intermediate Sparrow is believed to breed wholly north of the United States; but from this circumstance and its late occurrence at Fort Verde (May 11, 1887) it seems not improbable that some breed within our borders, in the higher portions of the Rocky Mountains.

Spizella socialis arizonæ. WESTERN CHIPPING SPARROW. — Breeds abundantly from the lower pines to near the tops of the highest peaks. In June it was found at the elevation of 10,000 feet on San Francisco Mountain; and it likewise resides during summer on the highest crests of the Mogollon range.

Junco cinereus dorsalis. RED-BACKED JUNCO.—Typical *dorsalis* breeds very plentifully through the northern Mogollon and San Francisco Mountains, but does not appear until one has ascended a considerable distance into the pine belt. It is the most characteristic bird of this higher region. Sets of fresh eggs were found from May 22 to July 22, 1887, the nesting season varying considerably with the altitude, but the clutch seen on the last date probably belonged to a second brood. A typical nest was found on May 30, 1887, in pine woods near the bottom of a ravine on Mormon Mountain. At a short distance was a deep snow-bank. The male parent flew from the nest, beneath my horse's feet, where I found it concealed in a thick bunch of wire-grass. It was composed of fine roots, stems of plants, grasses, and an occasional feather, loosely put together in the manner of most ground nests. It contained four eggs, of an elongated oval shape, measuring (in millimetres) 15 × 21, 15 × 20.5, 14.7 × 21.5, 15.4 × 21. Three of them are marked with lilac and reddish brown on a greenish white ground, the spots forming a circle around the great end; the remaining one differs from the others in having the wreath of spots about the small end.

I found its nest close to the upper edge of timber on San Francisco Mountain about the middle of June, and another nest on the very top of Baker's Butte, containing eggs, on the 22d of July.

Pipilo chlorurus. GREEN-TAILED TOWHEE.—It was not found breeding, but was common through the mountains in May and June. In the latter month I saw it on Mount Humphreys, of the San Francisco group, above 11,000 feet, timber line being at 11,468 feet, and the highest land in Arizona (the summit of Humphreys Peak) 12,568 feet.

Habia melanocephala. BLACK-HEADED GROSBEAK.—Breeds through the pine belt, ranging both higher and lower. It evinces an attachment to oak groves and wooded cañons, but is generally dispersed.

Piranga ludoviciana. LOUISIANA TANAGER.—Breeds throughout the pine zone, ascending higher on the peaks, where it was seen in the highest aspens but a short distance from the line where timber ceases to grow. Owing to its gorgeous plumage and sweet song it figures conspicuously in the alpine avifauna.

Piranga hepatica. HEPATIC TANAGER.—This sweet singer is a common resident of the pine belt, never having been noted by me higher than this. It is best suited, as to residence, with such rocky ravines, hills, and ridges in the pine district as are wooded with oaks, for which trees it has a marked predilection.

Progne subis. PURPLE MARTIN. — An abundant summer resident throughout this high region, especially near water. It usually builds its nest in holes in the largest dead pines, several pairs living in the same tree. The Martin of this region, while differing somewhat from the Eastern bird, is not the subspecies *hesperia* recently described by Mr. Brewster, to whom I am indebted for the means of making the comparison.

Tachycineta thalassina. VIOLET-GREEN SWALLOW. — This exquisite bird is highly characteristic of the wooded mountain regions of Arizona, where it breeds, not only in the hollows of trees, but very frequently in cavities in cliffs. While for the most part retiring to the higher land during the breeding season, a good many pass the summer and breed in the wooded cañons in which there are streams, in the lower country. None were found breeding in the immediate valley of the Verde, in the vicinity of Fort Verde, but they were sure to be found after ascending, for a short distance, any of the tributary streams that flow through cañons from the high plateau. There they usually nest in the limestone cliffs, which form the walls of the cañons. I have since seen them breeding in similar situations in the mineral formation about the hot springs and geysers of the Yellowstone National Park and in the bluff banks of the Big Horn River, in Montana.

Vireo gilvus swainsoni. WESTERN WARBLING VIREO.—A summer resident, breeding in the highest aspen timber on San Francisco Mountain, where it sang incessantly and sweetly. Immediately after the breeding season many of them descend to the lower valleys with their young. In autumn, it commonly resorts to the rank growth of annuals usually found beside streams in the valleys at that season, and is especially abundant in the beds of yellow *Cleome*, in the company of terrestrial Warblers of the genera *Helminthophila*, *Geothlypis*, and *Sylvania*.

Vireo solitarius plumbeus. PLUMBEOUS VIREO.—By its loud song this species is known to be a common denizen of the pine forests of this region; but it keeps so near the pine-tops as to be seldom seen, save by tracing to their source the sweet notes one almost constantly hears when riding through these grand forests, it being one of the most persisten

singers that I have met with. It often visits the spruce woods of the higher zone, a few perhaps breeding there.

Dendroica olivacea. OLIVE WARBLER. — I did not see this Warbler in the San Francisco Mountains, save one that was doubtfully identified on Mt. Kendrick, though it is a common summer resident in the adjacent portion of the Mogollon range, becoming still more abundant to the southward. It rises to the level of the firs, but is most numerous in the upper pines. At Baker's Butte it sang sweetly in July.

Dendroica auduboni. AUDUBON'S WARBLER.—A common summer resident throughout this region, ranging upward to the highest timber. It is never found, in summer, below the level of the pines. It is an excellent singer.

Dendroica graciæ. GRACE'S WARBLER.—This beautiful Warbler is preëminently a bird of the pines. It is found as soon as the pine belt is entered, and continues almost to its upper limit; but I did not meet with any in the aspens, firs, or spruces above the pines. In Clark's Valley, between Flagstaff and Mormon Lake, it was seen engaged in nest building on the last of May; it gathered materials for the purpose on the ground, in which situation its nest, when discovered, will perhaps be found. Its song is a sweet warble, frequently uttered from the lower pine boughs. It is very gentle and unsuspicious.

Setophaga picta. PAINTED REDSTART.—This brilliant Warbler inhabits the pine-forested portion of the Mogollon Mountains, descending, after the breeding season, to the streams of lower regions. In Tonto Basin, during August, it was found in considerable numbers in the dark cañon of Weber Creek, among the gigantic alders (*Alnus oblongifolia*) bordering that stream. It seemed fond of watching and conversing with its own bright reflection in the inky pools.

Cardellina rubrifrons. RED-FACED WARBLER. — A summer resident from near the lower border of the pine belt to the summit of the Mogollon Mountains. It was not seen on the San Francisco Mountains, but was found breeding about thirty miles south of them.

In 'Birds of the Colorado Valley,' Dr. Coues thus concludes his remarks on this species: "The birds thus introduced by Mr. Henshaw with some particularity to American ornithologists as one of the newest acquisitions, is left, as found, to my readers,—some one of whom, perhaps, may hereafter have his own story to tell of its nest, its eggs, and its nuptial song." Though this story has since been told (see this journal, Vol. V, p. 385), I will narrate my experience in finding the first nest of the Red-faced Warbler that ever fell into the hands of any naturalist.

On the 19th of June, 1886, I was encamped on a southern slope of the Mogollon Mountains, about five miles within the pine belt, in what has been designated the Great San Francisco Forest. Following a small stream into a little cañon between whose rocky walls stood groups of towering spruces and of aspens, the ground beneath thickly sprinkled with violets, strawberries, honeysuckles, and columbines, I entered a side ravine and had stooped to gather some flowering honeysuckles when a

little bird was flushed from its nest upon the side of the bank, close to the trunk of a large spruce. Alighting in a young spruce tree, it uttered a sharp, hard *chip*. It was the first Red-faced Warbler I had ever seen; and its red face, black cap, gray back, and white rump suggested to my mind a miniature of the European Bulfinch. The bird was so fearless, and the place so confined, that I had some difficulty in securing the specimen in good condition. The male was not seen. After a close search an old nest was discovered on the ground; and I was about to conclude that it belonged to my bird and was as yet unfinished, when I descried a small opening close beside it among the stones and pine needles; on parting some blooming honeysuckles (*Lonicera ciliosa*) and moss, I discovered the nest,—most artfully concealed. In it were four eggs, containing small embryos which were easily extracted, the shells being thick and hard. The nest rested on a mass of dry leaves and spruce needles, and was entirely covered up and concealed by the honeysuckles. It is well built, being composed of a neatly felted mass of plant-stems and strips of fine bark, lined with soft vegetable fibres and cow-hairs. Its outside diameter is 130 mm.; depth outside, 55 mm.; inside diameter, 45 mm.; depth inside, 30 mm. The eggs are spotted with reddish brown upon a white ground, the spots being aggregated and heavier about the larger extremity, and those markings underlying the shell having a purplish color. They measure, 16 × 13, 15.5 × 13, 16 × 13, 16 × 13.5 mm.

Salpinctes obsoletus. ROCK WREN.—A permanent resident from the lower pine region downwards. In summer it ranges to the highest peaks. It was one of the birds noted on the summit of Mount Humphreys in June, 1887, at which time the hollows thereabouts were filled with enormous masses of ice and snow, and fierce storms and high winds were prevalent.

Troglodytes aëdon aztecus. WESTERN HOUSE WREN. — A summer resident throughout the forested areas, ranging almost to timber line. It appeared to be fond of woods of mingled spruces, firs, and aspens on the mountain slopes. In the pine-forested tablelands almost every pile of rocks or fallen tree was inhabited by a pair of these Wrens. In the lumbering region about Flagstaff the finest pines had been felled and left on the ground, in preparation for the saw-mill. Among their branches these little Wrens were skipping merrily about; they were abundant and full of song.

Certhia familiaris montana. ROCKY MOUNTAIN CREEPER.—An abundant summer resident of the spruce, fir and aspen woods of high altitude, ranging to the timber line; much less common in the pines, to which it descends, however, in winter, when it is also occasionally seen in the cedars and piñons of the foot-hills, or in the deciduous timber along the streams in the valleys. In summer I have seen it no lower than 6500 feet, at which altitude it was only observed after the breeding season.

Sitta carolinensis aculeata. SLENDER-BILLED NUTHATCH.—A common summer resident in the pine and spruce belts throughout this region. It

very rarely appeared in the deciduous trees along the Verde River, and only in hard winters. To the cedars, junipers and piñons of the foot-hills it is a more frequent winter visitant.

Sitta canadensis. RED-BREASTED NUTHATCH.— A summer resident in the pine and spruce zones of the highest peaks of the Mogollon and San Francisco Mountains. It was not seen as low as the pine belt, though it doubtless descends from its high abode during the winter.

Sitta pygmæa. PYGMY NUTHATCH.—A summer resident through the pine belt. It is abundant, gregarious, noisy, and curious. It is sure to be an early spectator of any exciting scenes occurring in the feathered community.

Parus gambeli. MOUNTAIN CHICKADEE. — A common summer resident of the pines, ranging well up towards the highest forest growth on the peaks. The only nest examined was found in a cavity in a small aspen, about ten feet from the ground, near a spring, at the height of from 10,000 to 11,000 feet on San Francisco Mountain. It contained half-grown young on the 15th of June. The nest resembled that of the Eastern Black-capped Chickadee, being apparently felted in purse shape of cow and squirrel hair; but I was unable to examine it as thoroughly as I wished without danger of injury to the little ones, for whose welfare the mother showed the greatest solicitude. She was so fearless that I twice caught her in my hand when enlarging the hole to see into the cavity in which the nest was built. This species rarely visited the Verde Valley in winter, though it was more frequently seen in the bordering foot-hills.

Regulus calendula. RUBY-CROWNED KINGLET. — A very abundant summer resident throughout this area, except in the lowest pines where it is rare if occurring at all in summer. I saw it close to the timber line in June. A nest and clutch of fresh eggs were taken in a spruce-tree beneath which my tent had been pitched, at Mehrens' stock ranch in Quaking Asp Settlement, in a notch at the summit of the Mogollon Mountains, on May 26, 1887. It was attached to the end of a horizontal branch upwards of a hundred feet above the ground, where attention was attracted to it by the actions of the parents. Our chief packer, a strong and intrepid climber, secured the nest and eggs, with the parent, having to climb the tree twice and saw off the limb, before the hazardous feat was accomplished. The parents were extremely fearless.

Turdus aonalaschkæ auduboni. AUDUBON'S HERMIT THRUSH.—This, the sweetest mountain songster, is an abundant summer resident in fir and spruce forests, breeding late in May and in June. At Quaking Asp Settlement, near the end of May, a pair was engaged in building a nest in my camp. The nest was saddled on to the middle of the lowest limb of a large spruce, and the birds gathered material for its construction close about my tent with perfect freedom from shyness, accepting proffered bits of cotton for its completion. Like the Wood Thrush, its song is most frequent in the early morning hours, and after showers. The form wintering in the Verde Valley is the Dwarf Hermit Thrush (*Turdus aonalaschkæ*).

Merula migratoria propinqua. WESTERN ROBIN.—An abundant summer resident from the beginning of the pine belt upwards, but never occurring below the pines in summer. It ranges high at times, but is not common above the pine zone. Nests, at the upper edge of pine timber, contained young on the first of June, 1887. Its fine song continues until July.

Sialia mexicana. WESTERN BLUEBIRD. — A very abundant summer resident from the lower pines upward into the spruce belt, but not ascending as high on the peaks as the following species.

Sialia arctica. MOUNTAIN BLUEBIRD. — This lovely bird, though less abundant than the preceding, is a common summer resident throughout the area under discussion, breeding even below the summer range of the Western Bluebird. May 21, 1887, I took a set of five eggs, with the female parent, from a cavity in a rough-barked juniper (*Juniperus pachyphlœa*), just below the pines, on the Mogollon Mountains, near Stoneman's Lake. It was commonly seen on San Francisco Mountain during June, ranging up to the highest erect timber; the uppermost has a prostrate habit, due to the pressure of masses of snow and ice upon it during the greater part of the year.

TWO SPECIES OF SWALLOW NEW TO NORTH AMERICA.

BY W. E. D. SCOTT.

DURING a short visit to the Dry Tortugas, Florida, in the latter part of March and early April of the present year, 1890, it was the writer's good fortune to secure two species of Swallow, which up to the present time have not been recorded as occurring in North America.

The records are as follows:

Petrochelidon fulva (*Vieill.*). CUBAN CLIFF SWALLOW.*

Coll. of W. E. D. S., No. 8401, ♂ ad., Garden Key, Dry Tortugas, Florida, March 22, 1890. No. 8492, ♂ ad., same locality, March 25, 1890.

*For description of species see Cory, Auk, Vol. III, p. 57.

Calichelidon cyaneoviridis (*Bryant*). BAHAMAN SWALLOW.*

No. 8677, ♂ ad., Coll. of W. E. D. S., Garden Key, Dry Tortugas, Florida, April 7, 1890.

As the known habitat of the Cuban Cliff Swallow is Central America, from northern Yucatan to Panama, Cuba, San Domingo, Jamaica and Porto Rico, it is not surprising that it should occur at the Tortugas, especially in the spring. It seems probable that this species will be found to occur more or less regularly at this point during March and early April. The Bahaman Swallow must, however, be regarded, in the light of present evidence, as an accidental visitor, its known habitat being the Bahamas where it has been regarded by collectors as a rare species.

A LIST OF BIRDS OBSERVED AT SANTAREM, BRAZIL.

BY CLARENCE B. RIKER.

With Annotations by Frank M. Chapman.

[*Continued from p. 137.*]

[6. **Thryophilus** *sp.*——— ? There is a single specimen of a Wren of the *T. leucotis* type in Mr. Riker's collection, collected by Williams and labelled by him, "Corresponding to nest, ♂." The date and locality, farther than "Amazon," have been omitted, but there is little doubt that the bird came from Santarem, as the skin is evidently of Mr. Williams's make. With the material at my command I cannot satisfactorily identify this bird with any of the described forms, but rather than add to the confusion which already exists in this puzzling group I prefer to leave it unnamed. In general coloration it agrees exactly with a specimen of *superciliaris* (Lawr.) from Puna Island, but has the bill shorter, the superciliaries much more restricted, and the ear-coverts and cheeks distinctly margined with the color of the back.

True *T. leucotis* (Lafr.) I have never seen; this bird may possibly be that species; it does not, however, agree with descriptions, and is quite

*For description of species see Cory, Auk, Vol. III, p. 59.

different from *galbraithi* (Lawr.), by some authors synonymized with *leucotis*.—F. M. C.]

7. **Thryophilus tænioptera** *Ridgw.*

Thryophilus tænioptera RIDGW., Proc. U. S. Nat. Mus., X, 1887, p. 518.

A male taken June 29, 1887, on the 'mountain' in a dense forest amongst the tangled roots of climbing vines. There were several together, and when disturbed by the report of my gun, they darted off with a sudden outcry of shrill calls.

[This bird bears a close relationship to a specimen from Guiana, which I take to be *Thryophilus albipectus* (Cab.), a species which is generally synonymized with *leucotis* (Lafr.). Apparently we have then at Santarem two quite different birds, but both, by different lines of divergence, bearing relationships to the same species.—F. M. C.]

8. **Thryothorus herberti** *Riker.*

Thryothorus herberti RIKER MS., RIDGW., Proc. U. S. Nat. Mus., X, 1887, p. 516.

Two males taken June 13 and 29, 1887, on the 'mountain' in palm thickets.

[Having no material with which to compare this species, I can add nothing to the remarks contained in the original description.—F. M. C.]

9. **Anthus rufus** (*Gm.*).—Two specimens taken on the meadow, June and July, 1887.

10. **Vireo chivi agilis** (*Licht.*).— Common in lowlands. A busy little bird, having a song very much resembling that of our *V. olivaceus*.

11. **Cyclorhis guianensis** (*Gm.*).—Two specimens, male and female, taken July 9 and 13, 1887, from the treetops in the lowlands.

[For remarks on this species, see Allen, Bull. Am. Mus. Nat. Hist., II, 1889, p. 133.—F. M. C.]

[12. **Chelidon erythrogaster** (*Bodd.*). — A single specimen taken by Smith, March 1, 1889.—F. M. C.]

13. **Tachycineta albiventris** (*Bodd.*).—Common about water, June to August, 1887.

14. **Dacnis cayana** (*Linn.*). — Two males, one adult, one immature, taken June 1, 1887.

[15. **Dacnis plumbea** (*Lath.*). — A male taken by Smith January 21, 1889. Not before recorded from the Amazon, although it is necessarily to be expected from that region.— F. M. C.]

16. **Arbelorhina cærulea** (*Linn.*).—A male taken June 6, 1887.

17. **Cœreba chloropyga** (*Cab.*).—A female taken July 15, 1884.

[Smith's collection contains moulting, immature, and adult birds taken March 29 to April 1, 1889.—F. M. C.]

18. **Euphonia violacea** (*Linn.*).—Two males taken July 18 and 24, 1884, and two females taken August 4, 1884, and June 29, 1887.

[Three males (one taken by Smith, February 5, 1889) average as follows: Wing, 2.21; tail, 1.15; culmen, .32 in. Two females average: Wing, 2.15; tail, 1.18; culmen, .32 in.—F. M. C.]

19. **Euphonia chlorotica** (*Linn.*).— A male and female taken June 19, 1887.

[The male has the purplish reflections confined to the occiput, hind neck and throat, and measures: wing, 2.15; tail, 1.24; culmen .30 in. The female measures: wing, 2.08; tail, 1.15; culmen, .30 in.—F. M. C.]

20. **Calliste cayana** (*Linn.*). — A male and female shot on the campos July 14, 1884.

21. **Calliste boliviana** (*Bp.*).—One male and two females, taken respectively July 22 and 30, 1884, and June 6, 1887.

[The male has the abdomen of the same shade of yellow as in specimens from Bolivia and Ecuador, the lesser wing-coverts, however, are turquoise blue, mixed with the blue of the greater coverts, in some cases both colors appearing on the same feather. The specimen thus shows an approach to *Calliste mexicana* (Linn.).—F. M. C.]

22. **Tanagra episcopus** (*Linn.*).—Common, particularly on the campos.

[Two of three specimens, are, on comparison with a Guianan skin, evidently referable to this form, but the third, a male taken June 1, 1887, shows a decided approach to *Tanagra episcopus leucoptera* (Gray), the greater wing-coverts having a distinct margin of bluish white.—F. M. C.]

23. **Tanagra palmarum melanoptera** *Hartl.* — Very common.

[Comparison of the 21 specimens in the Riker and Smith collections with a series of forty odd examples of true *palmarum* from Matto Grosso, which agree with Maximilian's type, show that *melanoptera* is distinguished from *palmarum*, not alone by the greenish edgings to the wing and tail feathers, but more especially by the darker centres of the feathers of the back, and the peculiar purplish suffusion which in *melanoptera* is uniformly stronger and darker than in *palmarum*.—F. M. C.]

24. **Rhamphocœlus jacapa** (*Linn.*).— Very common.

25. **Phœnicothraupis rhodinolæma** *Salv. & Godm.* — [A female taken July 15, 1887, is referred by Mr. Ridgway to this species, thus extending its range from the Upper to the Lower Amazon.—F. M. C.]

[26. **Lanio atricapillus** (*Gm.*). — "Santarem, May 27; not common."* —F. M. C.]

27. **Tachyphonus cristatus** (*Gm.*).—A female taken July 15, 1887, on the 'mountain.'

28. **Tachyphonus luctuosus** *Lafr. & d'Orb.*—A male taken July 5, 1887, on the 'mountain.'

[Not before recorded from the Lower Amazon.—F. M. C.]

[29. **Tachyphonus melaleucus** (*Sparrm.*).—A male taken by Williams, June, 1883.—F. M. C.]

30. **Lamprospiza melanoleuca** (*Vieill.*). — Two males taken July 15, 1887, on the 'mountain,' feeding in the tops of tall trees.

31. **Saltator magnus** (*Gm.*). — Common in the lowlands. Its song resembles that of our Rose-breasted Grosbeak (*Habia ludoviciana*).

32. **Pitylus grossus** (*Linn.*).— A female taken in some underbrush on the lowlands, August 5, 1884.

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*Allen, Bull. Essex Inst., Vol. VIII, No. 8, 1876, p. 78.

[33. **Guiraca cyanea** (*Linn.*).—A female taken by Smith March 14, 1889.—F. M. C.]

34. **Sporophila minuta** (*Linn.*).—Common about meadows.

[A male taken July 1, 1887, apparently represents the fully adult plumage of this species and differs from Panama, Venezuela, and Cayenne specimens in having the head and upper back ashy gray, without olivaceous or brownish wash.—F. M. C.]

35. **Sporophila castaneiventris** (*Cab.*).— Common about meadows. Gregarious.

36. **Sporophila lineata** (*Gm.*).—Common in flocks, feeding on wild rice.

37. **Paroaria gularis** (*Linn.*).—Common along water courses.

38. **Sycalis columbiana** (*Cab.*). — Common; gregarious; song resembles that of a Canary. Observed building nests in half submerged bushes about the meadow, during June and July.

[The female, before unknown, may be described as follows: ("♀, July 16, 1884; shot on an island in the Tapajos; male shot at the same time;" coll. C. B. R.). Differing from the male, and not resembling the female of *Sycalis flaveola*. Above olivaceous ashy, forehead with an indistinct frontal band of orange yellow, feathers of the crown and back with obscure darker centres; quills blackish brown, margined externally with greenish yellow, the borders of the coverts and tertiaries having more of an ashy color; inner web of the quills whitish with slight yellowish reflections; under wing-coverts with a more evident trace of yellow; tail of the same color as the wings, the feathers externally margined with yellowish green, the under surface having slight greenish reflections; below soiled whitish, the breast with a band of pale buffy, the flanks slightly washed with yellowish, the crissum pale sulphur. Wing, 2.22; tail, 1.53; tarsus, .71; culmen, .42 in.—F. M. C.]

39. **Sycalis minor** (*Cab.*).—Common in large flocks about the meadows and river.

[Three specimens collected by Mr. Riker in June, July, and August, and a single one in the Smith collection taken March 1, present a large amount of variation but are evidently the same, and with some hesitation I refer them to *minor* of Cabanis. Of this form I have no examples, but should the identification be correct there can be little doubt that this bird should rank as a species, so widely does the most extreme of these four specimens differ from a series of over fifty true *arvensis* with which I have compared it. The Smith specimen more closely approaches typical *arvensis*, and agrees well with the description of *minor*, but from it we pass, through the remaining examples, by three nicely graduated steps to a specimen which below is clear, pure yellow, as are the others, but this color largely predominates above, the brownish of *arvensis* being here restricted generally to a narrow median line or shaft streak; the rump and upper tail-coverts are clear, bright yellow of the same shade as the under surface; the lesser wing-coverts are entirely greenish yellow, the median coverts widely margined with the same color.

Taken alone it is evident this bird differs too greatly from descriptions of *minor* to be identified with that species, but considering it in connection with the three remaining specimens, obviously representing different stages of the same bird, it is probable that we have here the fully adult, and before undescribed, plumage of *Sycalis minor*. The specimen described is labeled "♀ July 1, 1887;" if it be rightly sexed there can be little difference in the adult plumage of both sexes.—F. M. C.]

[40. **Gymnostinops yuracarium** (*Lafr. & d'Orb.*).—"Santarem."*—F. M. C.]

41. **Ostinops decumanus** (*Pall.*).—Common; while feeding, associates with *Cassicus persicus* in immense flocks.

42. **Cassicus persicus** (*Linn.*).—Common everywhere, and called by the natives 'Japim.' Hundreds of their pendulous nests are sometimes placed on one tree.

43. **Icterus croconotus** (*Wagl.*).—Common about meadows where it builds a pendulous nest. On account of its pleasing song it is frequently kept in captivity by the natives, who call it 'Rochinal.'

[44. **Molothrus bonariensis** (*Gm.*).—A male taken by Williams, May, 1883.—F. M. C.]

45. **Xanthosomus icterocephalus** (*Linn.*).—Common in large flocks, feeding on wild rice.

[46. **Amblycercus solitarius** (*Vieill.*).—There is a single specimen of this species in Mr. Riker's collection, bearing Mr. Williams's label and evidently of his make. The label, however, is without data, but the species is included here with little doubt that the specimen was taken at Santarem.—F. M. C.]

47. **Gymnomystax melanicterus** (*Vieill.*).—Common about the river in pairs, and known by the native name of 'Rochinal grande.' Builds a pendulous nest about three feet in length.

48. **Leistes guianensis** (*Linn.*).—Common about lowlands.

[49. **Cassidix oryzivora** (*Gm.*).—A female, taken by Williams, October 11, 1883.—F. M. C.]

[50. **Tænioptera nengeta** (*Linn.*).—One example without indication of sex, taken by Smith, March 13, 1889.—F. M. C.]

51. **Arundinicola leucocephala** (*Linn.*).—Common about meadows, building a covered nest in a partially submerged bush. A nest taken June 20, 1887, contained two eggs. I saw scores of these nests and they were invariably placed within a few inches of the nest of a large species of wasp. Owing to this peculiar association the natives call the bird 'Mother of the Wasp.'

[52. **Fluvicola albiventris** (*Spix*).—Two males, one taken by Williams, June, 1883, the other by Smith, March 9, 1889.—F. M. C.]

53. **Todirostrum cinereum** (*Linn.*).—A male taken July 14, 1884.

[54. **Todirostrum maculatum** (*Desm.*).—One example, without indication of sex, taken by Smith, March 16, 1889.—F. M. C.]

* Allen, Bull. Essex Inst., VIII, 8, 1876, p. 79.

[55. **Euscarthmus striaticollis** (*Lafr.*).—One example, without indication of sex, taken by Smith, March 2, 1889. Apparently not before recorded from the Amazons.—F. M. C.]

56. **Calopteryx ornatus** *Ridgw.*

Calopteryx ornatus RIDGW., Proc. U. S. Nat. Mus., X, 1887, p. 519.

One example, a female, taken in the second growth on the lowlands, June 16, 1887.

57. **Mionectes oleagineus** (*Cab.*).—One specimen taken July 22, 1884.

58. **Ornithion napæum** *Ridgw.*

Ornithion napæum RIDGW., Proc. U.S. Nat. Mus., X, 1887, p. 520.

Three specimens, June and July, 1887.

59. **Tyrannulus reguloides** *Ridgw.*

Tyrannulus reguloides RIDGW., Proc. U. S. Nat. Mus., X, 1887, p. 521.

A single specimen taken June 30, 1887, feeding on the trees about the house, its movements resembling those of a Kinglet.

[I am unable to separate this bird from *T. elatus* (Lath.) except by its smaller size.—F. M. C.]

[60. **Elænea pagana** (*Licht.*).—"Santarem, June; very common."*]

[61. **Legatus albicollis** (*Vieill.*).—One specimen taken by Smith, February 8, 1889.—F. M. C.]

62. **Myiozetetes cayennensis** (*Linn.*).—One specimen taken in a clearing, August 4, 1884.

63. **Myiozetetes sulphureus** (*Spix*).—A female taken June 16, 1887.

[Not before recorded from the Lower Amazon. Agrees in coloration with a Guianan specimen.—F. M. C.]

64. **Rhynchocyclus ruficauda** (*Spix*).—A male taken June 15, 1887.

[65. **Pitangus lictor** (*Licht.*).—One specimen taken by Smith, February 1, 1889.—F. M. C.]

66. **Pitangus sulphuratus** (*Linn.*).—A male taken June 30, 1887.

[Darker and much more olivaceous than a specimen from Cayenne.—F. M. C.]

67. **Myiodynastes solitarius** (*Vieill.*).—Common in the lowlands, feeding on seeds and insects.

68. **Megarhynchus pitangua** (*Linn.*).—Common in the lowlands.

69. **Muscivora regia** (*Gm.*).—A male taken June 14, 1887, sitting within a few feet of the ground in a dense forest in the lowlands.

[70. **Myiarchus tyrannulus** (*Müll.*).

Myiarchus nigriceps ALLEN, Bull. Essex Inst. VIII, 1879, p. 79.

One example taken by Smith, March 21, 1889. On examination Mr. Linden's Santarem specimen, recorded as *nigriceps* Scl., proves to be this species.—F. M. C.]

71. **Myiarchus ferox** (*Gm.*).—A specimen taken June 20, 1887, on the 'mountain.'

72. **Empidonomus varius** (*Vieill.*).—A female taken June 30, 1887.

73. **Tyrannus melancholicus** (*Vieill.*).—A male taken June 6, 1887.

*Allen, Bull. Essex Inst., VIII, 8, 1876, p. 79.

[74. **Tyrannus albogularis** *Burm.*

Tyrannus niveigularis ALLEN, Bull. Essex Inst., VIII, 1876, p. 79.

A typical male of this species was taken by Mr. Williams, July 25, 1883. This capture considerably extends the range of this species, which has before been known only from the interior of Brazil. Through the kindness of Mr. William Brewster, I have been enabled to examine at the Museum of Comparative Zoölogy, a number of the Linden specimens on which Mr Allen's paper was based, and find the bird there recorded (l. c.) as *Tyrannus niveigularis* Scl. to be *Tyrannus albogularis* Burm.

In addition to the first example mentioned there are two other specimens collected by Mr. Williams; one mounted in Brown University, without indication of sex or date of capture, the other a skin of a male in Mr. Riker's collection, taken in June, 1883. These birds agree very closely with each other and differ so decidedly from *albogularis*, as represented by a series of 18 specimens, that for a time I had little doubt of their distinctness. Certain peculiarities in coloration, however, have led me to believe that these specimens may have been preserved in alcohol, and I therefore simply append a comparison with its nearest ally, leaving it to be decided by the acquisition of further material whether the bird is deserving of recognition. The male, taken in June, is in fresh, unworn plumage. It may be distinguished from *albogularis* at any season, by (1) the greenish olive-brown instead of olive-green back, (2) a brownish suffusion in the ashy color of the head (the crown patch remaining unchanged), (3) the hair-brown (not black or blackish) auriculars, (4) the brown in place of black wings. It is the coloration of the wings, however, which has aroused my suspicion, and while, as has been stated, the general color is brown, there is a peculiar blackish and lighter brownish mottling on some of the quills which suggests a chemical change having occured in the coloration. This apparent abnormality is even more marked in the wings, and also the tail, of the mounted Brown University specimen. In both specimens the yellow of the underparts has evidently not been affected and agrees in color with that of *albogularis*.—F. M. C.]

75. **Milvulus tyrannus** (*Linn.*).—Common in lowlands and flooded tracts.

(*To be continued.*)

RECENT LITERATURE.

Ridgway on the Genus Xiphocolaptes.—Mr. Ridgway's 'Review'* of this difficult genus is based upon the material of the National Museum, supplemented by that of the American Museum of Natural History, the Boston Society of Natural History, and the Museum of Comparative

* A Review of the Genus *Xiphocolaptes* of Lesson. By Robert Ridgway. Proc. U. S. Nat. Mus., Vol. XII, 1889, pp. 1-20.

Zoölogy, and thus practically upon all of the material in this country available for study. "Somewhat to my surprise," says Mr. Ridgway, "the existence of a much greater number of clearly-defined forms than have been recognized by leading authorities soon became apparent; and a strict regard for the principles of geographical distribution and variation has left me no other resource than to describe a considerable number as new to science, even though by doing so the number of the latter exactly equals that of those which have hitherto been recognized as valid."

While he believes that more extensive collections, representing large areas in South America now practically unknown as regards this group, will considerably further increase the number of forms, it seems to him also probable "that more material will show that several of the forms now ranked as distinct species actually intergrade, thus being entitled only to trinomial instead of binomial appellations."

The range of the genus extends from southern Mexico southward to Bolivia, the Argentine Republic, and Paraguay. Of the 11 forms recognized by Mr. Ridgway the following are described as new: *Xiphocolaptes sclateri*, from southeastern Mexico; *X. emigrans costaricensis*, from Costa Rica; *X. virgatus*, habitat unknown; *X. ignotus*, from Ecuador; *X. cinnamomeus*, from Eastern Brazil; *X. major castaneus*, from Bolivia. Four additional species are included as "not seen" by the author, the exact status of which seems more or less in doubt. Several of the new forms are based on single specimens, in one case without locality, and in others on examples obviously immature. In view of our ignorance, through the absence of adequate material, of the variations dependent on age, sex, and season among Dendrocolaptine birds, Mr. Ridgway appears to have taken a rather bold position in reference to the present group.—J. A. A.

Ridgway on the Genus Sclerurus.—The equally difficult genus *Sclerurus* has also recently passed under Mr. Ridgway's critical notice.* This genus has about the same geographical distribution as *Xiphocolaptes* and about the same number of forms, as determined by Mr. Ridgway, who recognizes, in the present paper, ten species of *Sclerurus*. Of these one (*S. lawrencei*, from "Bahia") is described as new, and a Maximilian name is revived for another, Wied's *Tinactor fuscus* being considered as in part (the female) referable to *S. umbretta* (Licht.), and in part (the male) to a new form, for which Wied's name is retained. Heretofore Wied's *Tinactor fuscus* has been synonymized with *S. umbretta* (Licht.). Mr. Ridgway gives the habitat of *S. fuscus* as "Upper Amazons," but there is apparently no good reason for supposing the locality of either of Wied's specimens to have been other than southeastern Brazil. In his MS. Catalogue the locality and source of both these specimens are given as "Brasilien, M. R." (= meine Reise).† The remarks made

* A Review of the Genus *Sclerurus* of Swainson. By Robert Ridgway. Proc. U. S. Nat. Mus., Vol. XII, 1889, pp. 21-31.

† Cf. Bull. Am. Mus. Nat. Hist., Vol. II, p. 242.

above respecting the meagreness of our knowledge of the variations in *Xiphocolaptes* depending upon age, sex, and season, apply with even greater emphasis to the present group, specimens of which are so hard to procure that no very large series of any form is as yet available for study.—J. A. A.

Ridgway on Birds from the Galapagos Islands, the Abrolhos, the Island of Santa Lucia, and from the Straits of Magellan.—Mr. Ridgway has published two papers on the birds collected during the recent cruise of U. S. Fish Commission Steamer 'Albatross,' from New York around Cape Horn to San Francisco, Calfornia, the first* treating of the birds obtained at the Galapagos Islands. This collection is of special interest, as containing birds from two islands of this peculiarly interesting group from which no birds had previously been collected. Specimens of 47 species were obtained, including ten species not previouly reported from the Galapagos Archipelago, eight of which are described as new. An annotated list of the species is given, followed by a tabular list of all the 69 species thus far found among these islands, showing their distribution among the different islands, with also special lists for each island, and the authorities on which their occurrence rests. The paper is thus an epitome of our present knowledge of the ornithology of this "classic ground."

A new genus, *Nesomimus* (type *Mimus melanotis* Gould), is provided for the peculiar Mimine birds of the Galapagos Islands, and the following new species are characterized: (1) *Nesomimus macdonaldi*, Hood Island; (2) *N. personatus*, Abingdon Island; (3) *Certhidea cinerascens*, Hood Island; (4) *Geospiza conirostris*, Hood Island; (5) *G. media*, Hood Island; (6) *Cactornis brevirostris*, Chatham Island; (7) *Camarhynchus townsendi*, Charles Island; (8) *C. pauper*, Charles Island; (9) *Pœciloneta galapagensis*, Charles Island. Two specimens of the rare *Creagrus furcatus* were obtained at Chatham Island, showing *Creagrus* to be, in Mr. Ridgway's opinion, one of the best characterized genera of the Larinæ. A single specimen of *Sula gossi* was collected at Chatham Island, and a specimen of *Hæmatopus galapagensis* from James Island.

From the above showing, says Mr. Ridgway, it is evident "that the avifauna of the Galapagos Archipelago is by no means exhausted as a field of promising research in the problem of the 'derivative origin of species.' Future exploration will no doubt add new species and extend the range of those already known. The largest island of the group, Albemarle, is still almost untouched; . . . two islands (Wenman and Culpepper) have not been explored at all, while it can be safely said that on none of the islands has anything like a thorough investigation of the bird-fauna been made."

* Scientific Results of Explorations by the U. S. Fish Commission Steamer Albatross. No. I. Birds collected on the Galapagos Islands in 1888. By Robert Ridgway. Proc. U. S. Nat. Mus., Vol. XII, 1889, pp. 101-128.

The collection made at the Island of Santa Lucia, West Indies,* numbers 15 species. Of seven specimens of *Cœreba martinicana*, Mr. Ridgway says four have the superciliary stripe wholly white, and three bright yellow passing into white anteriorly, thus showing that his *Certhiola finschi* is untenable.

The collection from Abrolhos Islands numbers only five species, all water birds. The Straits of Magellan collection numbers 66 species, and includes a number of specimens of special interest. A species of *Geositta* is provisionally described as new (*G. longipennis*), its nearest ally being *G. antarctica* Landb. A specimen of *Upucerthia* forms the basis of a new species (*U. propinqua*), allied to *U. dumetoria*. Two examples of *Nycticorax* lead to the recognition of *N. obscurus* Bon. as a good species, it having before been merged by Mr. Ridgway with *N. nycticorax nævius* under the erroneous supposition that alleged specimens of *N. obscurus* he had examined were the true *N. obscurus*, which now proves not to have been the case.

For the bird usually called *Phalacrocorax brasilianus* (Gm.), Mr. Ridgway adopts the name *P. vigua* (Vieill.), he considering Gmelin's bird unidentifiable. He finds *P. vigua* to be closely allied to *P. mexicanus*, the latter seeming to be "simply a smaller intertropical race of *P. vigua*, in which case it should be called *P. vigua mexicanus*."

The 'Albatross' collection was made by Prof. Leslie A. Lee, naturalist of the expedition, assisted by Mr. Charles H. Townsend and Mr. Thomas Lee.—J. A. A.

Chapman on the Genus Xiphorhynchus.—In a paper of nine pages, recently published in the 'Bulletin' of the American Museum of Natural History,† Mr. Chapman reviews the Dendrocolaptine genus *Xiphorhynchus*, his work being based on the combined material representing this group contained in the museums of Cambridge, Boston, New York, and Washington, including the types of Lafresnaye's species in the Museum of the Boston Society of Natural History. Nine species are recognized, of which two are described as new, namely, *X. dorsoimmaculatus* (habitat "Cayenne?"), and *X. rufodorsalis* (ex Corumba, Brazil). *X. venezuelensis* Lafr. MS. is also for the first time described; *X. falcularius* (Vieill.) is disentangled from *X. procurvus* auct. (*nec* Temminck), with which it has been confounded, and various manuscript names of Lafresnaye's are duly allocated by an examination of Lafresnaye's types.—J. A. A.

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*Scientific Results of Explorations by the U. S. Fish Commission Steamer Albatross, No. II. Birds collected on the Island of Santa Lucia, West Indies, the Abrolhos Islands, Brazil, and the Straits of Magellan, in 1887-88. By Robert Ridgway. Proc. U. S. Nat. Mus. Vol. VII, 1889, pp. 129-139.

†A Review of the Genus *Xiphorhynchus* Swainson, with Descriptions of two new species. By Frank M. Chapman. Bull. Am. Mus. Nat. Hist., Vol. II, pp. 153-162. (Published July 5, 1889.)

Berlepsch on some Neotropical Birds in the U. S. National Museum.—In a paper in the 'Proceedings' of the U. S. National Museum * Count von Berlepsch publishes his determinations of various specimens submitted to him for examination. They represent 28 species of Hummingbirds, and 6 species of Passerine birds, the specimens of the latter being types of species described by Mr. George N. Lawrence. The paper comprises much interesting comment on questions of nomenclature and the status of alleged species. *Uranomitra quadricolor* Elliot (*nec* Vieillot) is named *U. ellioti*.—J. A. A.

Stejneger on European Titmice.—Dr. Stejneger, in a paper on the European Marsh-tits, † finds three forms of Marsh-tits in the Scandinavian Peninsula, one of which, *Parus colletti*, he describes as new. The relationship of the three forms is considered at length. In a paper on the European Crested Titmice, ‡ he finds the Scandinavian form separable from that of central Europe. To the former he restricts the name *Parus cristatus* Linn., and adopts *Parus mitratus* Brehm for the form of central Europe, which may, he says, prove to be only a geographical race of *P. cristatus*.—J. A. A.

Stejneger on Hawaiian Birds.—Two additional § collections received at the U. S. National Museum from Mr. Valdemar Knudsen form the basis of two recent papers by Dr. Stejneger. The first ‖ contains extended comment on 10 species of water birds, one of which, *Puffinus knudseni*, is described as new. *Anas wyvilliana* is described at length, and its relationships defined, its nearest affine proving to be *A. aberti* Ridgw. of northwestern Mexico, as previously pointed out by Mr. Ridgway.

The collection treated in the second paper ¶ was made wholly in the island of Kauai, and numbers about 20 species, of which about one-half are land birds. *Oreomyza wilsoni* is described as new. Further material shows that *Puffinus knudseni* is not separable from Mr. Salvin's *P. cuneatus*, described only a few months before *P. knudseni* was published.—J. A. A.

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* Notes on some Neotropical Birds belonging to the United States National Museum. By Hans von Berlepsch. Proc. U. S. Nat. Mus., 1888, pp. 559-566. (Published Sept. 20-25, 1889.)

† Notes on European Marsh-tits with Description of a new Subspecies from Norway. By Leonhard Stejneger. Proc. U. S. Nat. Mus., 1888, pp. 71-76. (Published Mar. 8, 1888.)

‡ Notes on the European Crested Titmice. By Leonhard Stejneger. *Ibid.*, pp. 113-114.

§ See Auk, Vol. V, p. 196.

‖ Further Contributions to the Hawaiian Avifauna. By Leonhard Stejneger. Proc. U. S. Nat. Mus. 1888, pp. 93-103. (Published Nov. 8, 1888.)

¶ Notes on a Third Collection of Birds made in Kauai Hawaiian Islands, by Valdemar Knudsen. By Leonhard Stejneger. *Ibid.* Vol. XII, pp. 377-386. (Published March 8, 1890.)

Stejneger's 'Review of Japanese Birds.'—Parts VIII * and IX † of Stejneger's 'Review of Japanese Birds' treats of the Nutcracker and the Wrens. In the first the synonymy, number, and relationships of the forms of the Nutcracker are considered at length. Two forms, a slender-billed eastern (*Nucifraga caryocatactes*), and a thick-billed western (*N. macrorhynchos*), are recognized, in accordance with the published conclusions of Dr. Blasius and V. von Tschusi-Schmidhoffen, as opposed to those of Mr. Seebohm. In the second paper two forms of Japanese Wrens are distinguished, namely, *Troglodytes* (*Anorthura*) *fumigatus*, inhabiting Japan proper, and ***T. f. kurilensis*** (subsp. nov.) from the Kurile Islands. —J. A. A.

Stejneger and Lucas on Pallas's Cormorant. ‡—While the extinct Great Auk of the North Atlantic has formed the subject of numerous papers, including several voluminous monographs, and is represented in museums by about 80 skins, 70 eggs, and "countless bones," the great extinct Pallas's Cormorant (*Phalacrocorax perspicillatus* Pall.) of the North Pacific is comparatively little known, a good detailed description of it being first printed in the present paper, from the original manuscript of the late Professor Brandt of St. Petersburg. So far as known, according to Dr. Stejneger, the only remains of the bird extant are two excellent fully adult specimens in the Museum of the Imperial Academy of Sciences of St. Petersburg, another in the British Museum, a fourth in the Leyden Museum, and a few bones (including the principal parts of the skeleton) in the United States National Museum, the latter collected by Dr. Stejneger on Bering Island. The only locality where Pallas's Comorant has been seen within historic times was at Bering Island, where Steller found it, in 1741, in great numbers; but it appears to have been wholly exterminated during the following century, mainly by man's agency. Though not flightless, like the Great Auk, it was of heavy build and of slow locomotion, in the air as well as on land, and thus fell an easy prey to the natives of the island, who used it for food during the long winters.

A large colored plate of the British Museum specimen, by Wolf, is given by Elliot in his 'Birds of North America,' and the same specimen is figured by Gould in the Zoölogy of the Voyage of the Sulphur. These, with a few wood-cuts, comprise the published illustrations of the species.

As already intimated, the only bones of this species extant in museums are those collected by Dr. Stejneger, in 1882, at Bering Island. These comprise the rostral portion of a cranium, a lower mandible and the right ramus of another, two nearly complete sterna, three nearly perfect pelves, various limb bones, and a few vertebræ. Detailed descriptions of them,

* Review of Japanese Birds. VII.— The Nutcracker (*Nucifraga caryocatactes macrorhynchos*). By Leonhard Stejneger. Proc. U. S. Nat. Mus., 1888, pp. 425-432.

† IX. The Wrens. *Ibid.*, pp. 547-548.

‡ Contributions to the Natural History of the Commander Islands. X.—Contributions to the History of Pallas' Cormorant. By Leonhard Stejneger and Frederic A. Lucas. Proc. U. S. Nat. Mus., Vol. XII, pp. 83-94, pll. ii-iv. (Published Feb. 5, 1890.)

with figures, are given by Mr. Lucas, who compares them with the corresponding parts of *Phalacrocorax carbo*, *P. urile*, and *P. dilophus*. Mr. Lucas finds *P. perspicillatus* "to have been a much heavier bird than *P. carbo*, and a bird of weaker flight; with more robust and muscular legs, and a more slender and more feeble head and neck."—J. A. A.

Lucas on the Osteology of the Thrushes and Wrens.*—Mr. Lucas concludes "that the Miminæ hold a somewhat intermediate position between the Wrens and Thrushes, and if the characters described are of sufficient value to be considered *family* characters (which is extremely doubtful) each of the groups under consideration seems to have equal right in that respect.

"The Wrens, as represented by the species in hand, form a harmonious group, agreeing very closely with one another in their osteology, and presenting some well-marked distinctive characters.

"The Thrushes also, when compared with the Wrens, present well-defined characters, and while differing among themselves more than do the Wrens, these differences are nevertheless very slight.

"Aside from *Galeoscoptes*, the Miminæ are fairly well marked, having a very characteristic shape to the maxillo-palatine process. This maxillo-palatine is so entirely different from that of the Wrens that from what little experience I have had I should hesitate to unite two groups so dissimilar in this respect. On the other hand, *Galeoscoptes* has such decided leanings toward the Thrushes, not only in its skull, but in other portions of the skeleton, that it would seem to connect them with the Miminæ. Be this as it may, *Galeoscoptes* is certainly nearer to the Thrushes than any other member of its group, while *Harporhynchus* seems to be the farthest removed."

It would thus seem that the position of the Miminæ as a subfamily of the Turdidæ was more in accordance with the osteological characters of the Miminæ than is its present position among the Troglodytidæ. "In fact," says Mr. Lucas, "it seems more and more clear that the Miminæ should not be included in the very sharply defined family Troglodytidæ." On the other hand, he believes that the true affinities of both *Chamæa* and *Certhia* are with the Wrens.

Mr. Lucas's important paper is illustrated with figures of the skull, sternum, and pelvis in *Merula*, *Campylorhynchus*, and *Harporhynchus*.—J. A. A.

Shufeldt on the Osteology of the Ardeinæ.†—This paper contains a detailed description of the osteology of *Ardea herodias* and *Nycticorax violaceus*, with excellent figures of the principal parts of the skeleton in

* Notes on the Osteology of the Thrushes, Miminæ, and Wrens. By Frederic A. Lucas. Proc. U. S. Nat. Mus., 1888, pp. 173-180.

† Osteological Studies of the Subfamily Ardeinæ. By R. W. Shufeldt, M. D., C. M. Z. S. Journ. Comp. Med. and Surg., July and October, 1889. (Separates repaged.)

these two forms, as well as of some bones of *Ardea candidissima*. The paper concludes with a 'Synoptical and Comparative Review of the chief Osteological Characters of certain species of North American Ardeipæ.—J. A. A.

Shufeldt on the Relationships of the Genus Chamæa. *—Upon a careful comparison of the structure, external and internal, of *Chamæa* with a variety of more or less closely allied forms, Dr. Shufeldt finds its closest agreement to be with the genus *Psaltriparus*, and that it thus has distinctly Parine rather than Troglodytine affinities. The principal forms with which comparisons were made are, among Wrens, the genera *Thryothorus*, *Salpinctes*, *Campylorhynchus*, and *Cinnicerthia;* among Tits, the genera *Parus*, *Lophophanes*, *Psaltriparus*, *Ægithaliscus*, and *Auriparus*; among other birds, the genera *Certhia*, *Regulus*, *Polioptila*, *Accentor*, etc. He first compares in detail their pterylography and topographical anatomy, and then their osteology and more or less their viseral anatomy. Figures of the skulls are given of eight species, including of course *Chamæa*. In the totality of its characters *Chamæa* is found to be much more closely related to the Bush-Tits than to any of the Wrens, unless it be the South American genus *Cinnicerthia*, which, however, is known to Dr. Shufeldt only from an examination of skins and plates representing its external characters. The last-named genus he conjectures, we fear without just grounds, may have, like *Chamæa*, Parine affinities. His passing remarks on *Perisoreus* are of interest, as showing that while in its external characters it so strongly recalls the Tits, it is essentially a Garruline bird, a comparison of the skeleton of *Perisoreus* with that of *Parus* at once dispelling the resemblance suggested by the external characters.—J. A. A.

Shufeldt's 'Studies of the Macrochires'.—Under this title† the author treats at some length several forms not belonging to the group of Macrochires, as *Ampelis cedrorum* (pp. 306-318), *Trogon mexicanus* and *T. puella* (pp. 318-338), and the North American Hirundinidæ (pp. 352-355) the latter with special reference to their relationship to the Swifts. *Ampelis*, as shown by Garrod, may be regarded as "an average Oscinine bird," with, says Dr. Shufeldt, "here and there in its economy traces of a Clamatorial type, such as is shown by its free lachrymal bone and a few other minor points." It apparently has no close morphological relationship with the Hirundinidæ. In the present memoir it was chosen on account of its average Passerine character for comparison with the other forms treated.

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* On the position of Chamæa in the System. By R. W. Shufeldt. Journ. of Morph., Vol. III, No. 3, pp. 475-502.

† Studies of the Macrochires, Morphological and otherwise, with the view of indicating their Relationships and defining their several Positions in the System. By R. W. Shufeldt, M. D., C. M. Z. S., Captain, Medical Corps, U. S. Army (communicated by W. K. Parker, F. R. S., F. L. S.). Journ. Linn. Soc., Zoölogy, Vol. XX, pp. 299-394 pll. xvii-xxiv. (Published Oct., 1889.)

The Trogons are found, as would be expected, to be widely separated from the Caprimulgine forms and the Hummingbirds, and to have no very close relationship with either the Cuckoos or the Kingfishers.

The Swallows are considered as a specialized group of Passeres, considerably modified through "physiological adaptations of structure."

As regards the general conclusions reached respecting the Macrochires, Dr. Shufeldt contends that the Caprimulgine birds are so far removed in structure from all other birds that they should rank as a separate order, the Caprimulgi, with the Owls as their nearest kin, and as having "no special affinity with the Cypseli, much less with the Trochili." He proposes also to give the Swifts the rank of an order, Cypseli. "This order, were it represented by a circle, would be found just outside the enormous Passerine circle, but tangent to a point in its periphery opposite the Swallows." He still contends strongly for the ordinal rank of the Trochili. In comparing the two groups, Swifts and Hummingbirds, he claims that they "have been associated together upon an entirely false system of classification, which assumed first, that they are alike in their wing-structure—a resemblance which I have shown to be purely *superficial*; secondly, that they both have an unnotched sternum, although physiological law demands it, and when associated with an entire organization that widely differs from that of another form which may happen to possess an unnotched sternum, it means nothing so far as affinity is concerned. This becomes the more evident when the sterna themselves are fashioned upon essentially different plans, as is the case in the Cypseli and Trochili."

The seven lithographic plates illustrating the present memoir give the pterylosis, skull, and other parts of the anatomy of *Ampelis cedrorum*, *Antrostomus vociferus*, and *Trochilus calliope*, and the skull and skeleton of *Trogon mexicanus*, the skulls of *Phalænoptilus nuttalli*, *Micropus melanoleucus*, several species of *Trochilus*, *Progne subis*, *Chelidon erythrogaster*, *Tachycineta thalassina*, *Tyrannus verticalis*, etc., and side views of the plucked bodies of *Micropus melanoleucus*, *Chætura pelagica*, and *Trochilus platycercus*.—J. A. A.

Shufeldt on the Osteology of the North American Passeres.*—In this paper the osteology of the leading types of the North American Passeres is reviewed, followed by a re-arrangement of the families in accordance with the author's conclusions. The skeletal characters of *Myadestes* prove to be eminently Turdine. Good cranial characters are found for the constitution of *Lophophanes* as a full genus. The families recognized are the same as those of the A. O. U. Check-List, with their limits the same, but the order of succession is radically changed, without, we fear, in some instances at least, very obvious improvement, even granting that

* Contributions to the Comparative Osteology of Families of the North American Passeres. By R. W. Shufeldt, M. D., C. M. Z. S. Journ. of Morph., Vol. III, No. 1, June, 1889, pp. 81-112, pll. v, vi.

the Corvidæ and the 'conirostral' series of families generally are better placed at the upper than at the lower end of the Oscinine series.

It is, indeed, doubtful whether any very final conclusions can be based on a consideration confined almost wholly to forms represented in North America, or without a pretty intimate knowledge of exotic types. Although such intimately related and practically inosculating groups as the Tanagridæ and Mniotiltidæ are separated in the new arrangement by the interpolation of such diverse forms as the Cinclidæ, Troglodytidæ, etc., we do not see that any new light is thrown upon their complex relationships. Such inferences as may be drawn from the color of the eggs, the similarity of the plumage, or otherwise, between young birds and their parents, the presence or absence of a rudimentary tenth primary, have of course more or less significance within narrow limits, but obviously fail as a test of affinity in any general sense. While the new classification is based mainly upon osteological characters, much stress is properly laid upon the size of the brain; and perhaps too much, here and there, on rather trivial characters.

The two plates accompanying the paper contain 26 figures, illustrating the cranial characters of 23 species.

Other recent papers on avian anatomy by Dr. Shufeldt are 'Notes on the Anatomy of *Speotyto cunicularia hypogæa*,'* and a paper entitled 'Progress in Avian Anatomyfor the years 1888-1889,'† the latter read at the last meeting of the American Ornithologists' Union (see Auk, VII, p. 68). —J. A. A.

Maynard's 'Eggs of North American Birds.'‡—Mr. Maynard's work was issued in nine parts, mostly during the year 1889. As about 1000 species and subspecies are treated in less than 160 pages of rather open text, the descriptions are necessarily brief and general. The ten plates contain about eighty figures, intended to represent "type eggs, not of groups of birds, but of types of the forms and patterns of coloration of North American eggs." The text is generally good so far as it goes, being limited to a statement of the number of eggs, their color (in general terms) and size, the breeding range and season of breeding, the whole usually condensed into about four to six lines of long primer type, on a rather narrow page. The arrangement, numeration, and nomenclature are, with slight exceptions, the same as in the A. O. U. Check-List; a few species being included which are not recognized by the A. O. U. Committee in making up the Supplements to the Check-List.

The work is fairly free from typographical errors, though not a few grievous ones occur, which the author laments, and partly corrects, in

* Journ. of Morphology. Vol. III, 1889, pp. 115-125, pl. vii.

† Journ. Comp. Med. and Vetern. Arch., Jan. 1890.

‡ Eggs | of | North American Birds | by | Chas. J. Maynard. | Illustrated | with ten hand-colored Plates. | — | Boston: | De Wolfe, Fiske & Co. | 1890.— 8vo., pp. iv + 159.

his Appendix. Whether the grouping of the Orioles and Blackbirds under the family "Sturnidæ," or the uniform substitution of *Chordelies* for *Chordeiles* are to be regarded as typographical accidents, or an expression of the author's preferences, is not evident.—J. A. A.

Bryant's 'Catalogue of the Birds of Lower California.'*—This paper is based primarily on the author's experience during two visits of several months each in 1888 and 1889 to Lower California, where he spent his time on the western coast near Magdalena Bay, and in travelling on horseback through the interior. His own observations are supplemented by notes furnished by Messrs. L. Belding and A. W. Anthony, and he has also availed himself of the literature bearing on the subject in order "to embrace the known avifauna of the entire peninsula and adjacent islands." Mr. Bryant begins his paper with an introduction of a dozen pages chiefly a narrative of his own and others' explorations, but including, too, a bibliographical list of twenty-four previous publications relating to the region. He then gives an annotated list of 320 species and subspecies of which 215 are land birds. The annotations usually are brief, and relate chiefly to the distribution and times of occurrence of each species. Occasionally there are extended biographical notices of much interest, as in the cases of *Phalacrocorax dilophus albociliatus*, *Pelecanus californicus*, and *Fregata aquila*. The paper is accompanied by a sketch map of Lower California, showing the places visited by Mr. Bryant. This map, however, does not appear with the author's extras. Mr. Bryant deserves thanks for having brought together so much valuable information about the ornithology of a region of which we have long had but a shadowy knowledge.—C. F. B.

Anthony on New Birds from Lower California.†—The birds here described were collected by Mr. Anthony and Mr. C. H. Townsend, in April and May, 1889, in the San Pedro Mountains in Lower California, situated about one hundred and fifty miles south of the United States, and about midway between the Pacific Ocean and the Gulf of California. The mountains form a series of small ranges having an altitude of 8000 to about 12,000 feet. The birds described as new are the following: (1) *Oreortyx picta confinis*, (2) *Aphelocoma californica obscura*, (3) *Junco townsendi*, (4) *Sitta pygmæa leuconucha*, (5) *Sialia mexicana anabelæ*. The first four, so far as known, are restricted to the region in question; the habitat of the last (*Sialia m. anabelæ*) includes also Mt. Lassen, in Northern California, Genoa, Utah, and Puget Sound. While the first four have

* A Catalogue of the Birds of Lower California, Mexico. By Walter E. Bryant. Proc. Cala. Acad. Sci., Ser. 2, Vol. II, pp. 237-320. With map.

† New Birds from Lower California, Mexico. By Alfred W. Anthony, Proc. California, Acad., 2d. Ser., Vol. II, 1889, pp. 73-82.

been admitted to the A. O. U. Check-List (see Auk, VII, pp. 60-66), the *Sialia* has been considered by the A. O. U. Committee as an inconstant phase of *S. mexicana*, which latter Mr. Anthony also found in the San Pedro Mountains, but which he believed was represented merely by migrants on their way to more northern breeding grounds.—J. A. A.

Sennett on Bird Legislation.—An address on 'Bird Legislation,' by Mr. George B. Sennett, read before the State Board of Agriculture of Pennsylvania at the Annual Meeting of the Board for the year 1889, has been recently published.* In reviewing the general subject, the importance of knowing our birds thoroughly in respect to their food habits is duly set forth; a succinct history of the work thus far accomplished is given, and the present methods of investigating this important subject are fully explained. This is followed by a discussion of what sort of legal protection is necessary, and the submission of a draft of 'An act for the Protection of Birds, their Nests, and Eggs,' modeled after the New York law devised by the A. O. U. Committee on Bird Protection, of which Mr. Sennett is Chairman. It is a pleasure to know that a statute in substantial agreement with the one here submitted was later enacted by the Pennsylvania Legislature. The various methods of placing a check upon the increase of the European House Sparrow are discussed at length, and important suggestions are given. A State bounty for the destruction of these birds is shown to be impracticable. The appointment of a State ornithologist is urged, a part of whose duties shall be a systematic effort, under an appropriation of money by the State, to exterminate the Sparrow pest.—J. A. A.

Publications Received.—**Beddard**, Frank E. (1) Contributions to the Anatomy of Picarian Birds.—Part I. (Proc. Zoöl. Soc., 1889, pp. 587-594.) (2) On the Anatomy of Burmeister's Cariama (*Chunga burmeisteri*). (Ibid., pp. 594-602.)

Chapman, Frank M. Notes on the Carolina Paroquet (*Conurus carolinensis*) in Florida. (Abstr. Proc. Linn. Soc., New York, 1889.)

Nehrling, H. Die Nord-Amerikanische Vogelwelt, Heft 7.

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Stone, Witmer. Catalogue of the Owls in the Collection of the Academy of Natural Sciences of Philadelphia. (Proc. Acad. Nat. Sci. Phila., 1890, pp. 124-131.)

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* Bird Legislation. By Hon. George B. Sennett, Erie, Pa. Report of the Board of Agriculture of Pennsylvania, for 1889. Pp. 12 (separates repaged).

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GENERAL NOTES.

Black Guillemot in Connecticut.—Through the kindness of Mr. Gurdon Trumbull, I received in the flesh a male *Cepphus grylle* taken at Stony Creek, Conn., in December, 1887. So far as I know there is no previous record of this species for the State.—JOHN H. SAGE, *Portland, Conn.*

The Widgeon (*Anas penelope*) near Baltimore, Md.—February 25, 1890, on the property of The Carroll's Island Club, Baltimore County, Md., Mr. Wm. Carpenter killed one of this species from a bunch of Baldpates. This bird has been mounted and is for the present in my care.—L. S. FOSTER, *New York City.*

The King Eider (*Somateria spectabilis*) at Brunswick, Ga.—I have been so fortunate as to secure two fine specimens of the King Eider, both of which I shot at the mouth of the Altamaha River. The first, a male, was taken April 25, 1890, and was alone. The other, also a male, was shot from a flock of seven, four males and three females, on May 5. All were rather tame and unsuspicious until shot at once, but I was unable to get near them again. The flesh of the two captured was found to be tender and delicious, with no fishy taste. The stomachs contained a few small shell-fish and some vegetable matter.—W. W. WORTHINGTON, *Shelter Island, N. Y.*

The Snow Goose (*Chen hyperborea nivalis*) on the Coast of Maine.—About the middle of last April I received a Snow Goose in the flesh that had been shot April 7 on Heron Island, at the mouth of the Kennebec River, by Mr. E. A. Morse, of Phippsburg, Maine. The bird was a female in good condition but not fat. Mr. Morse writes me that it had been seen about there for three days before it was shot. It never went outside on the open ocean, but stayed on the marsh or in some pond. It alighted one day with a flock of Wild Geese, but they appeared afraid of it, and it did not stay with them. Except in this instance it was always alone. It was very shy and wild, but would not leave the neighborhood.

There are some half-dozen published records of the capture of Snow Geese in New England, but unfortunately they are by no means explicit as to whether the specimens were of this form or of the smaller Western race, *C. hyperborea* proper. A point of interest is that they were all taken in the autumn or early winter.—C. F. BATCHELDER, *Cambridge, Mass.*

Former Abundance of the Wild Pigeon in Central and Eastern New York—During the early years of my boyhood Wild Pigeons abounded in great numbers in central New York. One case in particular I well remember in the spring of, I think, 1835. The southeastern part of the township of New Hartford, Oneida Co., N. Y., became for several days their feeding grounds. This region abounded in beech forests, upon the nuts of which trees they delighted to feed. For several days, beginning with the early dawn and extending to near the middle of the forenoon, the flight of these birds was almost incessant, and in the afternoon and evening their return was equally as phenomenal; their roost was reported as being in the town of Norwich, Chenango Co., a distance of about fifty miles. The flocks were so large and numerous that they appeared almost more like clouds, and during the most active part of the time many flocks would be in sight from any one point of observation. Their flight was also very low, probably owing to the close proximity of their feeding grounds, and caused the noise from their passage over our heads to be very perceptible, resembling the rushing sound of a heavy wind. Many of the smaller flocks would fly so low, that it induced the workmen from a neighboring machine-shop to try to kill them by striking among them with long poles; this failed, however, for some time, as the flocks simply parted and al-

lowed the pole to pass through without hitting any of the birds. After a time my father suggested that they strike in the direction of the flight, when, the birds being unable to see the pole, many of them were destroyed in this manner. I well remember my brother and myself standing in the garden, watching them as they passed over our heads, and throwing our caps at them, which would pass through the parting ranks without hitting a bird, the gap being closed again almost instantly, and not seeming to check their rapid passage in the least.

Many of the people in the vicinity employed nets to catch them. Going into the woods where they alighted in the quest of food, a spot of ground was prepared, the net set so as to be thrown over the spot by the rebound of a young sapling placed so as to be strongly bent under tension which when relieved would instantly carry the net over the prepared area. A living Pigeon, having been caught and a cord fastened to it, was allowed to fly into the air on the approach of a flock, when, on being drawn back to the ground, its cry would attract them, and they would follow and settle on the prepared ground where food had been scattered. Then the net was thrown across, and large numbers entrapped. A farmer, Mr. Oxford, whose farm was within their feeding ground and whose newly sown fields they were injuring, obtained my father's net in the morning, and by night, with the aid of his two sons, had a pile of dead pigeons which would have made more than one wagon load. The Indians from a distance came and camped in the vicinity, procured vast numbers of them, salted and packed them in barrels, and carried them away in quantities.

At a still later period, in the early sixties, on the mornings of two or three consecutive days, large numbers of Wild Pigeons passed up the Hudson Valley crossing over the City of Albany. One of these mornings the flocks were uncommonly large. Three in particular which passed northward in quick succession, so that all were in sight at the same time, were so large and dense that the shadow cast on the ground as they passed was like the shadow of a passing cloud, being easily perceptible. The Hudson Valley at this point from the level of the plateau on the west to Cantonment Hill on the east, must be two and a half miles or more in width. Standing on the crest of the hill to the south of the city, the east and west extremities of each of these three flocks were invisible, although they were at a great height; the ends dwindled away in the distance, appearing only as a faint shadow. I noticed a few days after in the newspapers a statement that there was an unusually large 'pigeon roost' near Fort Edward, N. Y.—R. P. Whitfield, *New York City.*

Harlan's Hawk.—I am pleased to notice that Mr. Ridgway has concluded (Auk, Vol. VII, p. 205) that *Buteo harlani* is only a variety of *B. borealis.* Thus far so good, but I think that in the near future the species '*harlani*' will be entirely disposed of and no attention whatever be paid to the singular coloration spoken of, which, at least in the specimens I have secured here, particularly in the fall, have shown its strong melanistic character. I have not the opportunity now to refer to specimens or notes but write from memory only.—D. H. Talbot, *Sioux City, Iowa.*

Habits of the Barred Owl.—The first paragraph of the interesting article by Mr. Bolles in the April number of 'The Auk,' would leave the general reader under the impression that the Barred Owl (*Syrnium nebulosum*) defends its nest and young by attacking the intruder. My own experience would lead me to conclude that it is a very timid bird. I have collected many sets of their eggs, and have frequently climbed to the nests to examine their young, and in no case have I ever been attacked by the parent birds. They usually fly away at the approach of the collector, and remain away until he leaves the vicinity. If the nest contains young, they make demonstrations of cries and snapping of bills from the safe shelter of a neighboring tree. I have known them to fly toward me snapping their beaks, until within a few yards, but they were careful not to come very near. I have never been atttacked or seen other persons attacked by any species of Owl in defense of its nest, except when the Owls were in confinement. I once experienced great difficulty in getting a set of eggs from a cage containing three Great Horned Owls.—D. E. LANTZ, *Manhattan, Kansas.*

Phalænoptilus nuttalli nitidus Breeding in Kansas. Is it a Valid Race or a Color Phase of P. nuttalli ?—Since the publication of the A. O. U. Check-List, two varieties of the Poor-will have been added to the the list, the Frosted and Dusky. Of the latter I have no personal knowledge. Its habitat—as given by the describer—is different from that of the Frosted, and if constant in the coloration of its plumage, it is doubtless a valid race. The home of the Frosted Poor-will, however, as far as known, is about the same as that of the Poor-will, and the few specimens of each that I have examined do not differ materially in size, and I am impressed with the thought that it is possible the Frosted may prove to be a dichromatic phase, similar to the case of the Screech Owl (*Megascops asio*), and not a bleached race, as it is now regarded. I therefore call attention to the matter. But, be that as it may, it now stands as a distinct race, and so anything relating to its nesting habits will be of interest. I therefore take please in saying that Mr. Eben M. Blachly, of Leonardville, Riley County, Kansas, kindly loaned me for identification a set of eggs, together with the skin of one of the parent birds (I regret that he did not capture its mate), which proved to be of this variety. The bird and eggs were collected in the vicinity of Leonardville, June 26, 1889. The eggs two in number, were laid upon the bare ground, under a bunch of grass, upon the prairie, near the edge of a cornfield. In color they are white. In form they are oval or rounded elliptical, the small end nearly as obtuse as the larger. They measure 1.05 × .79, and 1.03 × .78. They do not differ from the eggs of the Poor-will; this, however, would be expected, for even if the former is a valid race, the eggs might be expected to be alike.—N. S. Goss, *Topeka, Kansas.*

Food and Habits of the Ruby-throated Hummingbird.— On June 5, 1888, I secured a nest, containing one young bird and an egg on the point of hatching, of the Ruby-throated Hummingbird. The nest is a

very peculiar one, being constructed upon one of the preceding year, and in a very conspicuous situation upon a branch of sycamore, which inclined at an angle of 45°. It was about twelve feet from the ground, on the lowest branch (a dead one), with no foliage whatever to afford concealment, and could be readily seen from a distance of sixty to seventy-five feet in any direction.

The old nest is much the worse for wear, having passed through at least one winter; the new one was built partly on one edge of this and partly on the adjoining branch, leaving fully one-half of the distorted cavity at the base exposed. The entire external surface of both is covered in the usual way with lichens, although not in any way resembling the smooth, mottled surfaces adjoining. It would seem that the scenes of bygone associations have some permanent attractions, even though comparatively barren to our eyes.

Perhaps the most interesting facts were brought to light when the young one, about two days old, was examined. Its throat being much distended, I sought the cause by lightly pressing with a dull instrument from the thorax toward the bill, and succeeded in bringing to light, *sixteen* young spiders of uniform size. These measured about .11 of an inch in length, and with outspread legs covered a circle of .26 of an inch in diameter. Dissection revealed a pultaceous mass of the same in the stomach, but no more liquid than would result during digestion of insects of this gelatinous character. They were all of the same species, and may have been young found about certain plants in the immediate vicinity. It is surprising that young Hummingbirds of this age could thrive, as it would seem, entirely upon insects, although the quality be of the finest.

Although I spent several hours watching this nest, on different occasions, no food was brought at such times, but the actions of the female, as seen through a strong field glass at short range, were decidedly interesting. The approach to the nest was as usually described in about one third of the records—*i. e.*, directly to a point over and close to the nest, then dropping lightly into it. The general method, however, was by a dashing flight to within twelve or fifteen feet, a sudden pause while poised in the air, anxiously looking about her, then one or two feet further, another pause with the same manœuvres, to be repeated until at last, she dropped into the nest as ordinarily. This entire procedure occupied less than ten seconds. A few times she seemed to fly directly *into* the nest without any preliminaries.

Just after settling in the nest, she had a habit of occasionally completely turning around in it, one or more times. This was a hitching motion, as if by the use of her feet, meanwhile appearing to re-arrange the material on the outside and as if shaping the interior to her better satisfaction by this treading motion. At other times, spreading her wings over the nest in a seeming ecstacy of delight, she rather flutteringly turned around in it, apparently without regard for its precious contents.

There seemed to be one never varying position when at rest, that facing the more open part of the grove, the usual direction of approach be-

ing from behind, whereas the flight from the nest was toward the clearer space in front. The sitting posture was not one of absolute rest at any time, as the head was constantly in motion, so that no approach could be made without her knowledge. The flight from the nest seemed to be directly out of it, without any preliminaries. The weather was warm, yet she would remain on the nest from fifteen to twenty minutes, and in no instance was away more than two minutes, while I had her under observation. The male frequently appeared in the vicinity, but neither offered food or even deigned to alight on the same tree, yet birds which had a good claim in the neighborhood dared not approach very close, as the combined attack of these active birds always proved so distasteful that they invariably beat a hasty retreat.—EDWIN H. EAMES, *Bridgeport, Conn.*

Snake Skins in the Nests of Myiarchus crinitus.—The habit of the Great Crested Flycatcher of putting scraps of discarded snake skin in its nest is—so far as the nests which I have found—invariable. Nevertheless, in one instance, at Tamworth, New Hampshire, I found a nest with one egg in it but with no snake skin visible. I found it about 7 A.M. one beautiful day in early July, 1888. I touched the egg and handled the nest slightly. Shortly before sunset I looked a second time into the hollow limb where the nest was placed, and was much surprised, in fact somewhat startled, by what I saw. Forming a complete circle about the egg, resting, in fact, like a wreath upon the circumference of the nest cavity, was a piece of snake skin six or seven inches long. The part which had encased the head of the snake was at the front of the nest and was slightly raised. It may not be wise to found a theory upon a single fact, but from the moment I saw that newly acquired snake skin, placed as it was, I made up my mind that the Great Crested Flycatcher uses the skin to scare away intruders. When the full set of eggs was laid, I took them and the nest. Only remnants of snake skin remained in the rubbish of the nest. The large skin had been removed or torn to bits.

The following year the same hollow was again occupied by Great Crested Flycatchers. I found the nest on July 7. It contained four eggs, and some scraps of snake skin were in sight. All the eggs hatched on the morning of the 12th. On the intermediate days my visits to the nest were regular. During those days a number of larger scraps of skin were placed on the outer edge of the nest. Their position was changed almost daily. Once some were set up like a fence, and so was a hen's feather. The birds knew of my visits, and scolded me while I remained in sight. These facts tended to confirm my theory in my own mind.—FRANK BOLLES, *Cambridge, Mass.*

Wintering of the Red-winged Blackbird near Cambridge, Mass.— On the 29th of December, 1889, while passing along the edge of a small swamp grown up with cat-tails, low bushes, birches, and maples, not far from Fresh Pond, I heard repeatedly the note of a Blackbird. I was un-

able to follow up the sound owing to the thinness of the ice with which the swamp was coated, and failed to see the bird, although it answered my 'squeaking' several times. January 12, 1890, I visited the same swamp in company with Mr. Frank Bolles, and, finding the ice strong enough to bear, went towards some low bushes where I had heard the bird upon the previous date, and soon started a male Red-winged Blackbird in clear bright plumage. After alighting for a few moments in a small birch not forty yards away, the bird flew off across the swamp.

My friend Mr. Walter Faxon informs me that he found a Red-winged Blackbird in the same swamp on January 6, and 27, and on February 1, and 23, 1890, which was doubtless the same bird. The presence of this bird through January, a month which may be regarded as a test month for birds which are spending the winter with us, and on into February until within a few days of the arrival of the spring migrants, is thus established, and affords, I believe, the first record of the wintering of the Red-winged Blackbird in Massachusetts.— HENRY M. SPELMAN, *Cambridge, Mass.*

Coccothraustes vespertina in Taunton, Massachusetts.—On March 8, 1890, as I was walking out of my door I heard the notes of a bird strange to me but which at first I took to be those of the Pine Grosbeak. Getting my gun and coming out into the yard I found three Evening Grosbeaks feeding on the buds of a maple tree. In the course of a few minutes I had two fine males and a female laid out on my skinning table. This is I think the first record for Bristol County.— A. C. BENT, *Taunton, Mass.*

The Evening Grosbeak (*Coccothraustes vespertina*) **near Springfield, Mass.** — Mr. Edwin U. Leonard captured at Agawam a bird of this species from a flock of about twenty, March 21, 1890. A week or two later a bird of the the same kind was seen near there by Mr. Leonard.— ROBERT O. MORRIS, *Springfield, Mass.*

Junco hyemalis shufeldti in Maryland.—On the 28th of April, 1890, my son, A. W. Ridgway, shot a female of this subspecies near Laurel, Md. The specimen is a very typical one, having the distinctly cinnamon-pinkish sides abruptly contrasted anteriorly against the gray of the chest; in fact, so sharply defined and distinct is this pinkish color that it was supposed to be a *J. annectens*, until careful comparison with specimens showed otherwise. It was shot out of a small flock, in which my son thinks were others of the same kind, but he may have been mistaken.—ROBERT RIDGWAY, *Washington, D. C.*

Seaside Sparrows at Monomoy Island, Cape Cod.—Although I have kept a sharp lookout for the Seaside Sparrow (*Ammodramus maritimus*) at Monomoy every season, the first to my knowledge was taken by Dr. L. B. Bishop on the salt marshes, April 14, 1890. This bird, which was

an adult female, was moulting about the head and lower neck. Dr. Bishop saw several others but not thinking that they were rare shot only the above specimen. I visited the marshes several days after and hunted it carefully without seeing a bird, although I saw several Sharp-tailed Sparrows. From my own observation I am inclined to believe that this bird is rare in Massachusetts, at least on the Cape coast.—JOHN C. CAHOON, *Taunton, Mass.*

Young Cedarbirds and Great Crested Flycatchers in Captivity. — While in Tamworth, N. H., last July, I imprisoned two broods of young birds when just ready to fly, with a view to seeing what their parents would do about it. One brood consisted of five Cedarbirds and the other of four Great Crested Flycatchers. I imprisoned the Cedarbirds on July 10, placing them in an ordinary wire canary cage. Their cries, when being caged, brought the mother, who first flew in my face and then perched on the outer edge of the cage as it rested on my knees. I put the cage very near the house, and it was only a short time before the parent birds began consoling the young with cherries (*Prunus pennsylvanica*). During the twelve days of their captivity the young were supplied with 8400 cherries, or one cherry a bird every six minutes. I ascertained the number by counting and weighing the stones left by them in the bottom of their cage. On an average the old bird or birds made 140 visits a day, bringing five cherries, each time. One was carried in the beak, and the others were jerked up from the throat one by one until all of the five young were fed. At their release the young were so tame that they returned to take cherries, from my fingers, but the old birds soon enticed them away.

The young Great Crested Flycatchers were taken from their cavern in an apple tree on July 21, and placed in a wire cage which I hung in the next tree. I could see it from my barn door. The old birds would never go near the young if I was in sight. Concealed, I watched them with a glass and occasionally saw the young fed. They were given harvest flies, dragon flies, and various beetles, and also smaller insects of which they left no fragments. I kept them caged until early in August. They were as wild on the last day as on the first, and if the parents changed their feelings towards me, it was only by intensifying their hatred. —FRANK BOLLES, *Cambridge, Mass.*

Song of the Female Butcher Bird. — On the morning of April 8, 1890, when walking through the Fresh Pond Swamps at Cambridge, I heard a Butcher Bird (*Lanius borealis*) in full song. The bird was an unusually fine singer, and quite a mimic, its medley of notes suggesting a combination of the Brown Thrasher and as the Blue Jay, with an occasional 'mewing' sound much like the common Catbird. It was shot, and on sexing proved a female, the ovary being considerably enlarged. — ARTHUR CHADBOURNE, M. D., *Cambridge, Mass.*

Helminthophila celata at Montreal.— On May 21, 1890, I shot an Orange-crowned Warbler at Montreal. This is, I believe, the first record of its occurrence here.—ERNEST D. WINTLE, *Montreal, Canada.*

The Song of Helminthophila leucobronchialis.—At Englewood, New Jersey, on May 11, 1890, I saw and positively identified an apparently typical individual of *Helminthophila leucobronchialis*. Being fortunately without a gun I was spared the temptation of shooting, and during the ten or fifteen minutes which the bird was under my observation I had the pleasure of hearing it sing many times, even seeing it open its bill in the act of song. This song exactly resembled the rising and falling *tse* notes of *H. pinus* but was slightly weaker than the average song of that species.—FRANK M. CHAPMAN, *American Museum of Natural History, New York City.*

Dendroica cærulea again in the District of Columbia.—On May 5, 1888, I had the pleasure of capturing the first Cerulean Warbler taken in the vicinity of Washington (see 'The Auk' Vol. V, No. 3, p. 323). I took a second specimen, a female, on May 11, 1890, on the Virginia side of the Potomac. The bird was in the thick woods on top of a high ridge, and was shot without the least idea as to its true identity, it being taken for a Parula Warbler.—E. M. HASBROUCK, *Washington, D. C.*

Cistothorus stellaris at Washington, D. C.—Up to the present date five species of the Troglodytidæ have been taken at Washington. These are: *Troglodytes aëdon, T. hiemalis, Thryothorus ludovicianus, T. bewickii,* and *Cistothorus palustris,* all of which are common with the exception of Bewick's Wren, of which species three, I believe, have been taken. To this list I would add a sixth species, a single female Short-billed Marsh Wren having been taken on May 9, 1890. The species has been expected to occur here for years, there being no apparent reason why it should not be found, but thus far all attempts to secure it have been unsuccessful. The bird was evidently a thoroughly tired migrant that had stopped to rest, as it was found in the very place where one would least expect it,—a swampy little ravine thickly grown with young trees and skunk cabbage, and some little distance removed from any suitable locality. The bird was entirely alone, as I searched carefully for any other stragglers, and it was so exhausted that I had little difficulty in capturing it.—E. M. HASBROUCK, *Washington, D. C.*

Capture of the Hudsonian Chickadee in Worcester County, Mass.—A specimen of this species (*Parus hudsonicus*) was taken in a low swampy tract in North Ashburnham, Mass., during a blinding snowstorm, March 17, 1890. While wading through the snow along an old cart-path in the above-mentioned swamp I thought I detected an unfamiliar chirp in the bushes near by, and presently three dark colored birds appeared in sight. I immediately fired at the nearest one, but must have missed it, as, with the aid of my setter, I could not find it. In the mean time the other two had disappeared, but following carefully along in the direction they had taken I soon found them again, and secured one with the right barrel, but the other shell missed fire, but a friend with me, from whom the other

bird was hidden by thick bushes, handed me his gun and I secured it. They proved to be a young male and a female, the first examples of this species, I believe, ever taken in Worcester County.— R. E. KIMBALL, *Fitchburg, Mass.*

A Yellow-crowned Regulus calendula.—April 27, 1890, I shot near Laurel, Md., an adult male 'Ruby-crowned' Kinglet which has the crown-patch pure orange-yellow instead of vermillion, the plumage being otherwise quite normal. The crown-patch is very well developed, being more extensive than in the average of specimens. — ROBERT RIDGWAY, *Washington, D. C.*

The Breeding Ranges and Songs of Three Thrushes in Montana.— In June, 1889, while collecting in the Belt River Cañon I found the summer home of three of the smaller Thrushes more or less overlapping, and the following notes and comparisons, made at the time, may be of interest. The birds referred to are *Turdus fuscescens salicicolus*, *T. ustulatus swainsoni* and *T. aonalaschkæ anduboni*, the Willow, Olive-backed and Audubon's Thrushes.

First, I will speak of the Willow Thrush, the commonest and most widely distributed of the Thrushes in Montana. It finds favorite nesting sites all along the valley streams in thickets of willow, rose, box-elder, etc., that, as the summer advances, become almost impenetrable with a rank growth of weeds. From such localities its song is often heard on its first arrival, but later little else than its loud, plaintive call-note greets the listener's ear and one may spend many a fruitless moment in trying to obtain a fair glimpse of the wary little inhabitant of the secluded covert. From the lower valleys this species ranges up to the mountain foot-hills and cañons, but I have never seen it far from water or more than a few yards above the earth, and never in heavy, evergreen timber. The Willow Thrush's song, identical with that of the Eastern form, although so difficult to describe, is probably familiar to most lovers of birds in the regions where either variety breeds. It is not surpassed, in my estimation, either in beauty or length by the song of the Olive-backed or of Audubon's Thrush. The song of the latter may about equal it, while in any case, I should put the Olive-back last on the list of vocalists, although its notes are the most varied, and quite odd as well. Willow Thrushes are rare here in spring and fall migration, from which it may be inferred that no great numbers go much farther north. They arrive with considerable regularity about May 15. The latest date I have for their departure is September 7.

Next in order of abundance during the breeding season, is the Olive-backed Thrush. In migration it is the only common bird of the three, appearing in considerable numbers about the middle of May, and again the second or third week in September, along all the lower valley streams. The earliest I have noted their arrival in spring is May 10, and at this season they do not tarry long away from their breeding grounds. In the fall they appear from the higher elevations about September 1, and

remain till October 10 at least. Throughout the summer the Olive-back is only found in the mountains and, like the Willow Thrush, but very short distances from water, but unlike that species, the male is not satisfied with an elevation of only a few feet, when towards evening he pours forth his curious lay to his shy mate below. At such times the most prominent limb of some tall cottonwood is none too lofty a perch.

About the first of July I camped for several days in a grove that seemed a chosen resort for Olive-backs. Regularly, an hour or so before dark, a bird would be heard from some topmost branch, and scarcely would he be through, before another would answer from a few rods away, only to be followed by still another, till half a dozen or more could be heard from different localities. Nor would they cease until the last rays of daylight were rapidly disappearing from the western sky. In early morning they were not nearly so active. In regard to the song itself, the birds almost always begin with several call-notes, interspersed with various odd chucks, then the ringing melody, characteristic of the Willow Thrush's song is produced, winding up rather abruptly with some fine, weaker notes. Occasionally they would utter the first call-notes and chucks without anything following, but I never heard the latter and more pleasing part of the song without the prelude. They were so excessively shy that it was some time before I actually identified the song as belonging to this bird. Usually, long before getting within anything like shooting distance, the notes would cease, and while vainly endeavoring to catch a glimpse of the shy performer through the dense foliage above, suddenly his mocking call-note would come from some impenetrable thicket near by.

Audubon's Thrush, according to my observations, is much the rarest, in Montana, of the birds under consideration. It reaches a somewhat higher elevation than the other two, and I have seen it at least half a mile from streams in dense evergreen timber. The first specimen noted was in the top of a pine sixty or seventy feet high, standing on a projecting knoll of the mountainside some eight hundred or a thousand feet above Belt River. I was first attracted by the song, at that time quite new to me, and shortly discovered and obtained the bird. Their song begins with two (sometimes only one) clear, whistle-like notes of slightly different pitch, followed by the ringing melody peculiar to the songs of the other species, and the whole, though rather too brief, produces a fine effect as it comes floating, clear and distinct, from the silent dark-timbered mountainsides. They sing at irregular intervals throughout the day, and never seem to collect together in any numbers, certainly manifesting some very hermit-like traits.

Following are about the altitudes at which I have found the three species during the breeding season. The Willow Thrush inhabits from the lowest valleys up to about 4200 ft., the Olive-back from 4200 to 5000 ft., and Audubon's Thrush from 4200 ft. up to probably 6000 ft.— R. S. WILLIAMS, *Great Falls, Montana.*

Additional Notes on the Probable Breeding of Saxicola œnanthe near Godbout, Province of Quebec, Canada. — In 'The Auk' for July, 1885, Dr. C. Hart Merriam recorded several specimens of the Wheatear taken by me on the north shore of the St. Lawrence during May and June of 1884 and 1885. Since then I have secured several additional specimens which throw more light on the occurence of the species near Godbout. I shot a young male September 19, 1885, and another specimen November 9, 1886. None were observed in 1887 or 1888. September 30, 1889, while visiting the Caribou Islands, I saw five of these birds together, but having no gun was unable to secure specimens. The next morning I saw one hopping around the house where I was staying, and upon calling the attention of my host, Mr. Chas. Jordan, to the bird he informed me that he had noticed a pair of them several times but was not certain of the date when he had first seen them — probably about the end of August. I have since heard that his son shot two or three. October 17, 1889, I shot a pair of Wheatears at Godbout, both exceedingly fat; one of these was sent to Dr. Merriam. Two days later (October 19) I saw a single bird but was unable to secure it.

Caribou Islands being only twenty miles east of Godbout it is quite possible that some if not all of the birds observed here during October were the same I noticed there. It can hardly be expected that I have seen all that have passed this point, and several may have occurred along the north shore both east and west without being recorded, but I think *Saxicola œnanthe* has been observed here often enough, and at dates close enough to its breeding season, to entitle it to a place in the list of birds breeding in this vicinity.— NAP. A. COMEAU, *Godbout, Quebec.*

Notes on Several Species of Water Birds at Muskeget Island, Massachusetts.—**Anas crecca.**—On March 16, 1890, I had the good fortune to shoot a European Teal at Muskeget. It was an adult male in full spring plumage, and was the only Teal seen there. The day before there had been a very severe northeasterly snowstorm. The bird's stomach contained nothing but a few seeds. These have been identified by Mr. Sereno Watson as no doubt belonging to some species of *Ranunculus*, most probably *R. septentrionalis*, which is common in swamps and ditches from New England to Florida and Texas. Little clue is afforded therefore as to the bird's last feeding ground. The skin is now in the collection of Mr. William Brewster.

Tringa canutus.—Two Red-breasted Sandpipers were shot by myself on Muskeget March 19, 1890, but only one was saved; this was a male. There had been three in all, and they were all in the gray autumnal plumage. The one skinned was very fat. According to two local accounts these three birds had been living there a considerable part of the winter, none having been seen before at this season. They were first noticed about the middle of January. They were also seen by Mr. Marcus Dunham on Feb. 15.

Calidris arenaria.—On March 19, 1890, I saw a flock of about thirty-five Sanderlings and shot one from it. I saw them again March 22. I learn

from Mr. Marcus Dunham, a local sportsman, that a few winter here every year, the number varying from a dozen to fifty or sixty.

Ægialitis vocifera.—One Killdeer was shot on Muskeget, Feb. 28, 1890, the only one seen. I have preserved the skin.—GEORGE H. MACKAY, *Boston, Mass.*

Notes on Several Birds in the Catskill Mountains.—In the summer of 1889 I spent a few days among the Catskill Mountains, and though I was unfortunately prevented from giving much time to ornithology, I noted one or two things that are worth mentioning because they differ from the experience of Mr. E. P. Bicknell as recorded in his well-known paper on the birds of that region. * Mr. Bicknell's work, which was done almost entirely in the Big Indian Valley and on Slide Mountain, covered but a small portion of the whole Catskill Mountain region, and a rich field still awaits the ornithological surveyor who will undertake a thorough, detailed exploration of all its mountains and valleys.

Zonotrichia albicollis.—Mr. Bicknell did not meet with the White-throated Sparrow at all in the Catskills, and it is very likely nowhere abundant in the region. I found one singing, however, on the afternoon of July 18, on the Plaaterkill Turnpike between the foot of Overlook Mountain and Tannersville. It was in low, rather wet ground, a half-wooded pasture on the head waters of Schoharie Creek, and at an elevation probably of about 1800 feet. Along the same road, and at similar altitudes, I saw *Galeoscoptes carolinensis* and *Harporhynchus rufus.*

Pipilo erythrophthalmus.—What I saw of the Towhee was very different from Mr. Bicknell's experience with it. He says: "Except on my latest trip to the Catskills, when it was twice noted in the Big Indian Valley, this bird was not observed." During my stay at Overlook Mountain (July 14–18) I found Towhees plenty all over the top of the mountain (altitude 3150 ft.), perhaps most so in a tract, burnt over some time ago, where a second growth of scrub oak five or six feet high had grown up among the dead oaks most of which were still standing. I heard them singing every day of my stay. July 15 I shot a full-grown young in first plumage, attended by both its parents.

Geothlypis philadelphia.— At Overlook Mountain I found Mourning Warblers, adults and young, near the top of the steep upper slopes of the mountain, in woods consisting mainly of scrub-oaks twenty or thirty feet high, with a good deal of underbrush of oaks and other shrubs, and with here and there a fallen tree. I mention this, as it seems contrary to the usual habits of the species which is apt to frequent such places as Mr. Bicknell found it in,—burnt land grown up with willow herb, wild red cherry, etc.

Turdus aonalaschkæ pallasii.—The Hermit Thrush does not seem to have been found by Mr. Bicknell except on the higher parts of Slide Mountain. It was common in the hard woods on the upper slopes of Overlook Mountain and also on the hills (altitude 2300-2600 ft.) near the Catskill Mountain House.—C. F. BATCHELDER, *Cambridge, Mass.*

* Transactions of the Linnæan Society of New York, Vol. I, pp. 113-168, 1882.

Notes on Birds Observed in the Colorado Desert in Winter.—We arrived at Boregas Spring Dec. 20, 1889. This spring lies about 25 miles northeast of Warner's Pass, in a western arm of the desert, and about 10 miles from the foot of the mountains on either side. It is a barren part of the desert. A few small mesquit trees are scattered around in the least arid part of the valley, and stunted *larrea* bushes grow a few yards apart over the entire region. Cactuses are scarce, the soil being too poor for their growth. Below the spring is a considerable patch of arrow-weed. A stay of a week proved that birds were scarce, thirteen species only being noted. I found several species of the smaller mammals tolerably well represented, principally pocket rats and allied species. The birds noted were :—

Circus hudsonius. One seen.

Sayornis saya. One seen.

Corvus corax sinuatus. One seen occasionally, perhaps different individuals.

Carpodacus mexicanus frontalis. Rather common.

Chondestes grammacus strigatus. Several seen.

Zonotrichia leucophrys intermedia. Common.

Amphispiza belli nevadensis. Several seen.

Phainopepla nitens. Several seen.

Harporhynchus lecontei. Two shot, another seen.

Catherpes mexicanus punctulatus. Two seen in clay cliffs.

Auriparus flaviceps. Several seen. One caught in its nest about sunrise. This species sleeps in its nest most of the year.

Polioptila plumbea. Six shot, others seen. In winter plumage.

Sialia mexicana. Several seen.

From Boregas Spring our course was east 20 miles to turn a spur of the mountains, then northwest 15 miles to a spring known by the Indians as La Carisita de Laguna Salada. A heavy rain had fallen two weeks previously and we found water in pools in three places. Usually there is no water to be found in this 35 miles of barren desert, which is nearly impassable with a wagon. No road exists, and much deep sand and many bad washes occur, so that with our light spring wagon we were nearly three days going from one spring to the other, our principal trouble being to find places to cross the washes.

Over this 35 miles of desert the only birds I saw were a pair of *Harporhynchus lecontei*, and a small flock of *Zonotrichia leucophrys intermedia* at a rain-water pool off the point of the mountain. As the water of the Carisita spring was too alkaline to be palatable we went on the next morning six miles to the first of a series of springs called by the Indians Agua Dulce (sweet water). Here was an old Indian village, deserted except by one family. This proved a good collecting ground. From there to Indio, a station on the Southern Pacific Railroad, the soil was good in places, with plenty of good-sized mesquit trees, and a few species of birds were moderately abundant. Birds of the Sonoran Province mingled with northern birds driven down by the snow from the adjacent mountains. The birds noted from this part of the desert were :—

Anas carolinensis. Four seen at the Carisita Spring.
Callipepla gambeli.. Several coveys seen. Six shot.
Zenaidura macroura. Rare.
Circus hudsonius. Occasional.
Buteo borealis calurus. Occasional.
Falco sparverius. Two seen.
Speotyto cunicularia hypogæa. One seen.
Dryobates scalaris bairdii. Three shot.
Colaptes cafer. Several seen.
Micropus melanoleucus. Common.
Sayornis saya. Occasional.
Corvus corax sinuatus. Rather common.
Agelaius phœniceus? One female seen.
Carpodacus mexicanus frontalis. Common.
Spinus psaltria. Several seen.
Zonotrichia leucophrys intermedia. Abundant.
Junco hyemalis oregonus. One seen.
Amphispiza belli nevadensis. Several seen.
Ampelis cedrorum. Small flock seen.
Pipilo aberti. Three taken, others seen. Shy as usual.
Phainopepla nitens. Common.
Lanius ludovicianus gambeli. Several seen; one shot.
Dendroica auduboni. Several seen.
Oroscoptes montanus. One shot January 7, 1890.
Mimus polyglottos. Two seen.
Harporhynchus lecontei. Several seen.
Harporhynchus crissalis. One shot, others seen. In full song.
Campylorhynchus brunneicapillus. Occasional.
Troglodytes aëdon aztecus. Several seen.
Cistothorus palustris paludicola. Several seen at the springs.
Auriparus flaviceps. Occasional.
Polioptila plumbea. Rather common.
Merula migratoria propinqua. Several seen.
Sialia mexicana. Common.

From Indio we went north to the palm groves in the cañons opening on the desert from the foot-hills on the north side. In these palm groves were a few birds of common species. The only bird of any interest that I saw was a female *Myadestes townsendi*, shot January 10.

Soon after leaving the palm groves I saw a small flock of *Otocoris* and shot a female, which appears to be *O. a. chrysolæma.* We left the desert by way of the San Gorgonio Pass, January 17.

The principal results of the trip, as far as birds were concerned, were the extension of the known range of *Harporhynchus crissalis* west to Indio, and the finding that this species, *Pipilo aberti*, *Auriparus flaviceps*, *Polioptila plumbea*, *Oroscoptes montanus*, and *Myadestes townsendi* all winter in the desert. The last two should probably be considered as stragglers.—F. Stephens, *Santa Ysabel, Cala.*

CORRESPONDENCE.

[*Correspondents are requested to write briefly and to the point. No attention wil be paid to anonymous communications.*

The Delaware Valley Ornithological Club.

To the Editors of the Auk:—

Dear Sirs: — The majority of the readers of 'The Auk' have no doubt spent a good deal of time in the study of bird migration and in the systematic arrangement of their field notes with a view to reaching general facts in regard to the subject. While a single observer making careful notes for a number of years can determine many interesting facts, such as the average time of arrival and departure of the various birds at his station, and the relation of the 'migration waves' to meteorological variations; still there are many other points bearing on the subject of migration which it will be impossible to study without the assistance of other workers in the same field.

Recognizing the advantages to be gained by combined work, a number of ornithologists residing in the vicinity of Philadelphia have organized he Delaware Valley Ornithological Club, for the study of the birds of southeastern Pennsylvania and southern New Jersey, with especial reference to their migration in the valley of the Delaware River. The active membership of the club is limited and consists only of those who have had considerable experience in field work and are known to be thor oughly reliable. An associate membership has been added to include beginners in the study who can furnish data subject to the approval of the active members, and in return can receive the benefit of their experience.

The following is a brief outline of the methods, of work of the Club. Daily field notes are taken by the members, and recorded systematically on monthly charts containing vertical columns for the days and horizontal ones for the birds in the order of their occurrence during the month. The spaces are sufficiently large for recording the number of birds seen (as recommended by Mr. Batchelder, in the April number of 'The Auk'), and short abbreviated notes as to singing, mating, nesting, etc. Across the top of the chart are blanks for recording the curve of temperature variation, the direction and force of the wind, and other corellative notes. In addition to these individual charts there are "combined monthly charts," on which the notes of all the observers are recorded followed by private marks indicating their various stations. These charts are passed from one member to another and when all the data have been recorded are reproduced by a copying process and copies furnished to each observer. In the same way it is proposed to have yearly charts on which will be recorded the first and last occurrence, arrival and departure of bulk, and other general facts relating to each species.

The Club meets in Philadelphia twice a month, when all matters of importance are discussed and specimens exhibited.

Another aim of the Club is to keep a complete record of all the birds which occur in southeastern Pennsylvania and southern New Jersey, and

of the breeding habits of those species which remain in this district during the summer. These observations will cover a wider field than those on migration, the latter being confined to the immediate vicinity of the Delaware River south of Trenton, as it is thought that better results can be obtained by restricting the country covered by the observations to one river rather than by including other river or coast districts.

During the present year the Club has seven regular observers, — Wm. L. Baily at Wynnewood, Pa.; Samuel N. Rhoades at Haddonfield, N. J.; J. Harris Reed at Tinicum Island, Pa.; Geo. Morris at Olney, Pa.; Dr. Spencer Trotter at Swarthmore, Pa.; Chas. A. Voelker at Chester, Pa., and Witmer Stone at Germantown, Pa.

The results so far have been highly satisfactory and have far surpassed our expectations. We therefore thought that by stating our methods of work other observers similarly situated might be led to "join their forces" and gain the benefit of each others' work as we have done.

This work need not interfere in any way with that being conducted by the Department of Agriculture, as the correspondents of the Department can fill out their schedules as heretofore, or they can substitute the combined report of the Club, as may be desired. In any case the results obtained by the combined efforts of a number of observers in a small district cannot fail to be of service to the Department when it undertakes to work out the migration through the country at large.

At the close of the year we hope to present to 'The Auk' an abstract of the migration of 1890 as it occurred in the valley of the Deleware, with a map showing the district covered by each observer.

WITMER STONE.

Academy of Natural Sciences, Philadelphia, Pa.,
June 5, 1890.

NOTES AND NEWS.

JOHN HENRY GURNEY, an Honorary Member of the A. O. U., of Northrepps, near Norwich, England, died April 20, 1890, at the age of seventy-one years. He was "the son of the world-wide famous Joseph Henry Gurney, of Earlham, whose name men hold dear for his philanthrophy, and for his writings in defence of civil and religious liberty. From his boyhood's days John Henry Gurney took a lively practical interest in bird-life and common objects of the country. He began his connection with the Norfolk and Norwich Museum by a gift to that institution when he was only ten years old. In the year 1849 he was chosen President of the Museum, which office he filled to the day of his death." For many years he has been a recognized authority on the Raptorial Birds of the world, and the magnificent collection of these birds — one of the finest extant — in the Norfolk and Norwich Museum was brought together mainly by his efforts, and is almost wholly his gift. He prepared and

edited the late C. J. Andersson's 'Birds of Damara Land and the adjacent countries of Southwest Africa,' published in 1872. His contributions to 'The Ibis,' 'The Zoölogist,' and the 'Proceedings' of the Zoölogical Society are very numerous, running back for nearly fifty years. They relate largely to Raptorial birds, but include papers on South African ornithology, and especially upon British birds. In 1884 he published his very important and well known 'List of the Diurnal Birds of Prey, with References and Annotations.' He was one of the Founders of the British Ornithologists' Union. His business life was that of a banker, he being a partner of the banking firm of Gurneys, Birkbecks, and Co. He was a Member of Parliament from 1854 to 1862, and for many years a magistrate for the County of Norfolk and city of Norwich. His many good works had "endeared him to his neighbors in every rank of life." He leaves two sons, one of whom, John Henry, is a well-known ornithologist.

'Zoe, a Biological Journal,' is published at San Francisco, California, on the last day of each month, by the Zoe Publishing Company. Volume I, No. 1, bearing date March, 1890. It is an octavo of 32 pages, filled with original matter of excellent quality. The opening article, by Dr. H. W. Harkness, President of the California Academy of Sciences, on the 'Nomenclature of Organic Life,' is a terse statement of the fundamental principles of sound nomenclature. Interspersed with articles on botany and ichthyology are several papers on birds. Mr. A. W. Anthony describes the nests and eggs of Townsend's Junco and the San Pedro Partridge, and Mr. W. E. Bryant gives some interesting observations on birds during the total solar eclipse of January, 1889. There is a department of 'Recent Literature,' and another of 'Proceedings of Societies.' The prospectus states that 'Zoe' is designed to "furnish a medium for the dissemination of the results of scientific thought and investigation, and for the review of contemporaneous scientific literature, especially that relating to the west coast of America." The merits of the new journal entitle it to a cordial welcome and we heartily wish it a success.

Captain Charles E. Bendire is preparing for publication an elaborate treatise upon the oölogy and breeding habits of North American birds. It will be based upon the author's own wide experience, supplemented by occasional extracts from previous writers, and by matter contributed by his correspondents, and will cover the subject with as great thoroughness as existing knowledge will permit. Much new information will be given, helping to define exactly the breeding range of each species. The descriptions of the eggs will be taken in most cases from the now unrivalled collection of North American eggs in the United States National Museum. The work will probably fill five large quarto volumes, and be illustrated with colored plates of the eggs of each species. In both accuracy and artistic merit these plates are likely to be of an unusually high order.

Captain Bendire would be glad to correspond with any one who is disposed to aid him with any new information about the breeding habits of our birds. All such contributions that may appear in the book will be duly acknowledged.